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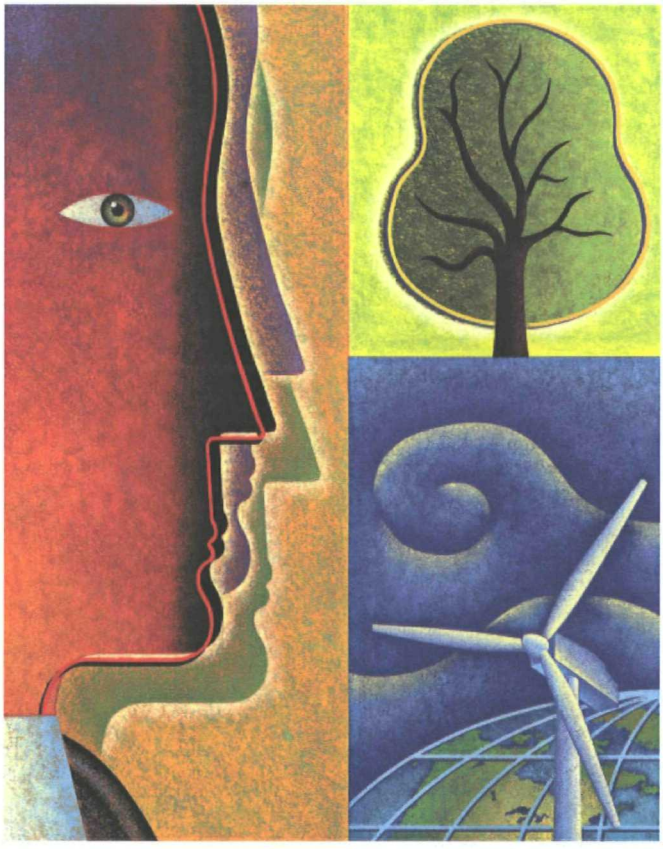
Leachate Evaluation Report for the Lemberger Landfill

February 2010



CREATING BALANCE℠

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Leachate Evaluation Report for the Lemberger Landfill

February 2010

Prepared For
Lemberger Site Remediation Group

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Section 1
Background

In 1996, the remedial actions at the Lemberger Landfill (LL) were implemented, that included the following:

1. improving surface drainage and constructing a landfill cover over the entire 21-acre site to limit infiltration,
2. relocating waste and constructing a perimeter slurry wall to limit horizontal groundwater inflow and create an inward gradient, and
3. pumping leachate from eight perimeter extraction wells to lower leachate levels.

The Operation and Monitoring (O&M) Plan for the LL includes a remedial target for the groundwater/leachate level of 1 foot above the top of the clay confining unit (CU). Since the implementation of the remedial actions, the leachate levels have dropped below the waste in all locations. While the leachate levels at the site continued to decline, the rate of decline had slowed and there are several locations where the groundwater/leachate levels remain greater than1 foot above the underlying CU. The analysis showed that with the decreased rate of head level reduction that the remedial targets would not be met at every monitoring location within the established time frame (RMT 2007).

In Progress Report No. 10 (RMT 2002), the Lemberger Site Remediation Group (LSRG) committed to monitoring the rate of leachate head reduction on an individual well basis. In the event that the revised projected date to reach target levels was greater than 30% of the projected time to reach target levels, a work plan would be submitted to the United States Environmental Protection Agency (USEPA) and the Wisconsin Department of Natural Resources (WDNR) for performing a remedial options analysis.

The LSRG submitted a leachate head evaluation report for the LL in 2007 (RMT 2007). That report included a technical analysis of the leachate recovery efforts to meet the ROD criteria, a review of the slurry wall installation, and a water balance to simulate flow of precipitation, infiltration, and vertical seepage through the landfill. The water balance indicated that infiltration through the cap and slurry wall and leakage through the clay underlying the landfill is nearly in equilibrium, resulting in no increase in water levels regardless of whether leachate is extracted. The analysis of the slurry wall concluded that a portion of the southeast corner of the containment probably does not fully extend to the clay confining unit or bedrock. This accounts for seasonal groundwater accumulation in the southeast corner of the LL, and the similarity of water levels within the landfill to monitoring wells outside the landfill. Fortunately, the gaps

do not cause groundwater to contact the landfill waste or to allow leachate to escape the slurry wall.

The report proposed a demonstration study be conducted to collect actual field data to determine the impact that discontinuing leachate extraction would have on the leachate/groundwater levels. The prior study suggested that there would be no significant increase in response to discontinuing leachate extraction at the site. The LSRG submitted a workplan to USEPA and WDNR in October 2008 to conduct the study. The scope of the demonstration study was to turn off the leachate extraction system, monitor leachate levels at the LL for a period of one year, and collect leachate/groundwater samples from beneath the LL for laboratory analysis. The study began in December 2008 and was completed in December 2009. This report summarizes the results of the demonstration study.

Section 2
Leachate Level Monitoring

The groundwater/leachate extraction system at the LL consists of eight extraction wells and nine leachate head wells. The purpose of this network of extraction (LW) and leachate head (LH) wells was to provide a mechanism for removing leachate or groundwater found within the area bounded by the slurry wall and to provide a network of wells to document the leachate level. Table 1 summarizes the well network, and Figure 1 illustrates the locations of those wells. Leachate/water levels have been collected on a monthly basis since the system was installed in 1997. Hydrographs of the head levels measured in the LL are provided in Attachment 1.

The leachate head demonstration project was initiated by turning off the leachate extraction system on December 8, 2008. Leachate/water levels were collected daily for three days after shutdown, then on a twice-monthly basis for the project duration. Figures 2, 3, and 4 are cross sections through the LL illustrating the water levels presented in the previous report (RMT 2007) compared to the most recent water levels collected in December 2009. Leachate levels at the head wells ("LH" wells) at the LL have changed very little since the system was shut down (Table 1). The average increase was less than 0.1 foot. More dramatic increases at the extraction wells (average of 6.9 feet; range of -0.01 to 16.1 feet) are the result of the rapid return from the pumping level in the well to the actual static levels as indicated by the head wells.

The leachate levels in dry wells (LH-4, LH-5, and MW-14R) have remained dry. Wells LH-6 and LH-7, that are seasonally dry, also have shown no change in their behavior since shutdown of the system. LH-6 and LH-7 continue to mimic the behavior of monitoring wells outside the LL slurry wall (i.e. OW-106A/B, RM-206S, RM-207S, RM-208S, RM-301S, and RM302S – see Attachment 1). As reported in the previous leachate evaluation report (RMT 2007) and confirmed here, hydrographs in the UGU show annual, 3-10 feet fluctuations in water levels in response to spring snowmelt. LH-6 and LH-7 show a similar behavior, except the magnitude is slightly less, and LH-7 has remained dry in some years.

The leachate levels remain a minimum of 3.6 feet below the depth of wastes in the LL, averages almost 8 feet, and ranges up to 17 feet below the waste. The current, monthly reporting frequency is adequate to detect any significant changes in leachate levels. Consequently, the current monitoring schedule, coupled with the lengthy database of historical leachate levels, is sufficient to provide timely response if leachate levels threaten to contact the waste.

Section 3
Groundwater/Leachate Sampling

Leachate samples for laboratory analyses were collected from the leachate head wells during the demonstration study. Sampling was conducted in December 2008. Four (LH-01, LH-02B, LH-03, and LH-15R) of the nine leachate head wells contained sufficient water to obtain a sample. The leachate was previously analyzed from samples from the leachate head wells in July 2000 (except MW-14R, which was sampled in March 2001). Analytical results for both sampling rounds are summarized in Table 2 and the complete analytical results for the 2008 sampling are provided in Attachment 2.

VOCs were detected in all the leachate wells in 2000/2001. Concentrations at that time were as high as 13,000 ug/L of 1,2-dichloroethene (DCE) in LH-04 and 10,000 ug/L of 1,2-DCE in LH-06. Other chlorinated VOCs detected included 1,1,1-trichloroethane (TCA), 1,1-dichloroethane (DCA), trichloroethene (TCE), and vinyl chloride (VC); all at much lower concentrations. Benzene, toluene, ethylbenzene, and xylenes (BTEX) were also detected in most LL wells in 2000/2001. Wells at the north end of the LL (LH-01, LH-02B, and LH-03) contained trace concentrations of CVOCs and low concentrations of BTEX in 2000. Head wells in the southern and central areas of the LL contained the higher concentrations.

Comparing the data from the two sampling events (Table 2) suggests a general decrease in VOC concentrations since 2000. Total BTEX decreased in three of the four wells, and cis-1,2-DCE and VC decreased markedly in MW-15R. Total VOC concentrations detected in 2000 were approximately 2,100 ug/L in MW-15R; in 2008, the VOC concentrations decreased to 57 ug/L. Leachate head wells that are in the currently dry and seasonally dry portions of the LL (LH-4, LH-5, LH-6, LH-7, and MW-14R) contained the highest concentrations of VOCs in 2000. The head wells in the perennially saturated north portion of the LL contain very few VOCs at very low concentrations.

Section 4
Water Balance

A water balance of the landfill was presented in the previous leachate head evaluation report (RMT 2007) in order to better understand the relationship between leachate extraction, leachate levels, and the rate of leachate head reduction. The landfill liquids balance was shown on an earlier version of the attached Figure 5 and was described mathematically by the following equation:

$$R + Q_{wall} - Q_{EX} - Q_v = \Delta S,$$

where

R = recharge,
Q_{wall} = flow through the slurry wall,
Q_{EX} = leachate extraction,
Q_v = downward vertical flow,
ΔS = rate of change in storage.

Previous calculations and best available data were used to develop estimates of each of the input and output terms in the water balance equation. This equation was used to determine that it would not be necessary to extract groundwater from the UGU in order to maintain water levels below the base of waste.

The year of monitoring leachate levels supports the previous analysis. Leachate levels in the LL are not increasing appreciably, indicating that the net volume of water stored in the UGU is not changing on an annual basis. This suggests that the rate of inflow through the cover and slurry wall approximately equals the vertical flow through the confining unit (CU), and the rate of leachate extraction can be removed from the equation, as illustrated on Figure 5.

Section 5
Conclusions and Recommendations

Since the completion of remedial activities in 1996, water levels within the containment area have dropped significantly and continue to decline. Leachate levels originally measured in the LL were likely the result of recharge and groundwater infiltration prior to installation of the slurry wall and cap. The leachate extraction system was effective in removing those fluids. The conceptual model developed as part of this evaluation predicts that water levels will remain at their current level with or without additional pumping. This prediction is supported by the lack of any increase in head levels during the period of this demonstration project.

Leachate/groundwater levels have not increased more than 1 foot in any of the head wells and the trend of the levels suggest they are stable. Portions of the LL that had been pumped to dryness remain so, and no area of the LL is in immediate danger (or shows trends that suggest a longer term threat) of the leachate/groundwater contacting the waste. Analytical results suggest that the remaining leachate contains very low concentrations of VOCs that are much lower than those measured in 2000. This is consistent with the steady decrease in VOC concentrations measured in the extraction system influent.

The demonstration study has confirmed the conceptual model and water balance as presented in the previous leachate evaluation report (RMT 2007). Leachate/groundwater containing VOCs was trapped within the LL with installation of the slurry wall. Removal of this water was accomplished during the 12 years of active pumping. Leachate/groundwater presently in the LL is much less impacted and is most likely derived from infiltration through the cap and slurry wall. Operation of the leachate recovery system at the LL is not necessary to maintain leachate levels below the remaining wastes. Leachate/groundwater at the LL is not a measurable source of VOCs to the groundwater plume that is the focus groundwater remediation efforts at the Lemberger sites. The ROD requirement that leachate levels be maintained within 1.0 foot of the CU appears to be unnecessary from a risk standpoint and should be amended.

RMT recommends that leachate/groundwater level monitoring should continue on a monthly basis as a protective measure in the event conditions change. A monthly monitoring frequency appears adequate for this purpose. The leachate extraction system will be maintained in order to be placed in operation, if necessary. The results of the monthly leachate/groundwater level monitoring and annual leachate/groundwater monitoring will be incorporated into the annual project progress reports that are submitted for the site.

Section 6
References

RMT. 2002. O&M progress report No. 12, July 2001-July 2002 reporting period. Lemberger Landfill and Lemberger Transport and Recycling Site, Town of Franklin, Wisconsin. Prepared for Lemberger Site Remediation Group. November 2002.

RMT. 2007. Leachate head evaluation report for the Lemberger Landfill. RMT, Inc. October 2007.

Table 1
Relationship of LL Wells to Leachate Levels, CU, and Waste

WELL ID	WELL TYPE	BOTTOM OF SCREEN ELEVATION	TOP OF CU ELEVATION	ESTIMATED BASE OF WASTE ELEVATION	AVERAGE LEACHATE ELEVATION AFTER SHUTDOWN	AVERAGE LEACHATE ELEVATION BEFORE SHUTDOWN	DIFFERENCE IN ELEVATION (negative values indicate water level dropped)	CURRENT LEACHATE DISTANCE TO BOTTOM OF WASTE	NOTES
LW-1	Extraction well	841.6	842.1	NA	844.36	842.49	1.87	NA	
LW-2	Extraction well	831.9	831.4	NA	831.20	831.21	-0.01	NA	
LW-3	Extraction well	828.9	828.9	NA	830.91	827.02	3.89	NA	
LW-4	Extraction well	819.0	819.0	NA	830.90	820.95	9.95	NA	
LW-5	Extraction well	820.8	819.8	NA	830.91	822.52	8.39	NA	
LW-6	Extraction well	816.0	816.0	NA	831.10	815.00	16.1	NA	
LW-7	Extraction well	814.4	814.9	NA	827.19	817.31	9.88	NA	
LW-8	Extraction well	821.1	821.1	NA	827.14	822.02	5.12	NA	
MW-14R	Head well	833.7	833.7	843	833.45	833.66	-0.21	9.6	Dry since 2004
MW-15R	Head well	825.5	824.5	841	831.01	830.99	0.02	10.0	
LH-1	Head well	829.2	822.2	839	830.79	830.72	0.07	8.2	
LH-2B	Head well	825.3	825.3	835	831.18	831.05	0.13	3.8	
LH-3	Head well	825.7	823.7	840	831.29	831.28	0.09	8.7	
LH-4	Head well	830.0	829.6	847	829.97	829.98	-0.01	17.0	Dry since 2006
LH-5	Head well	834.0	834.0	841	833.81	834.03	-0.22	7.2	Dry since 2001
LH-6	Head well	846.2	846.7	852	848.36	847.42	0.94	3.6	Seasonally dry since 2001
LH-7	Head well	844.6	840.6	849	844.62	845.48	-0.21	4.4	Seasonally dry since 2000

Notes:
(1) Measurement is from the bottom of the screen. Each screen is 5 feet in length with a 3 foot sump below.
(2) Estimated from boring log data and more recent survey data.
(3) Estimated based on boring log for LH-2. No boring log is available for LH-2B.
(4) NA = not applicable since there is no waste present above the extraction wells.
(5) Average leachate elevation calculated from one year prior to shutdown and the duration of the demonstration project (December 2008 through December 2009).
(6) All values in feet, elevations are feet above mean sea level.

Table 2
Leachate Analytical Summary

WELL NUMBER	SAMPLE DATE	CHLORO-BENZENE	CHLORO-ETHANE	1,1-DCA	1,1-DCE	1,2-DCA	1,2-DCE, TOTAL	1,2-DICHLORO-PROPANE	METHYLENE CHLORIDE	TCE	1,1,1-TCA	1,1,2-TCA	PCE	VINYL CHLORIDE	BTEX TOTAL
LH-01	7/13/2000	--	--	--	--	--	--	--	--	--	--	--	--	--	12.51
	12/2/2008	--	--	--	--	--	--	--	--	--	--	--	--	--	0.65 ← benzene
LH-02B	7/12/2000	--	--	0.71Q	--	--	--	--	--	--	--	--	--	--	4.6 ←
	12/3/2008	0.62Q	--	--	--	--	--	--	--	--	--	--	--	--	1.6 ← benzene
LH-03	7/12/2000	--	--	--	--	--	0.95Q	--	--	--	--	--	--	--	1.3
	12/4/2008	2.2	--	--	--	--	--	--	--	--	--	--	--	--	2.6 ← benzene
LH-04	7/13/2000	--	300	640	2.7Q	13	13,000D	8.3	--	6.9Q	--	--	--	900	3,720
LH-05	7/13/2000	1.0Q	--	2.0	--	--	6.1	1.2	--	0.56Q	--	--	--	--	408.6
LH-06	7/13/2000	--	21	1,200D	2.8	35	10,000D	5.6	9,600D	47	380D	6.8	6.8	290D	1,405
LH-07	7/13/2000	7.6	--	--	--	--	2.3Q	--	--	--	--	--	--	--	128.1
MW-14R	3/14/2001	3.7	--	2.1	--	--	99	2	--	1.8	--	--	--	21	109.4
MW-15R	7/12/2000	0.50Q	--	--	2.2	--	1,800D	--	--	--	--	--	--	290D	8.2
	12/4/2008	--	--	--	--	--	40	--	--	--	--	--	--	16.4	0.9 ← benzene

Notes:

D = Dilution factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

Q = Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

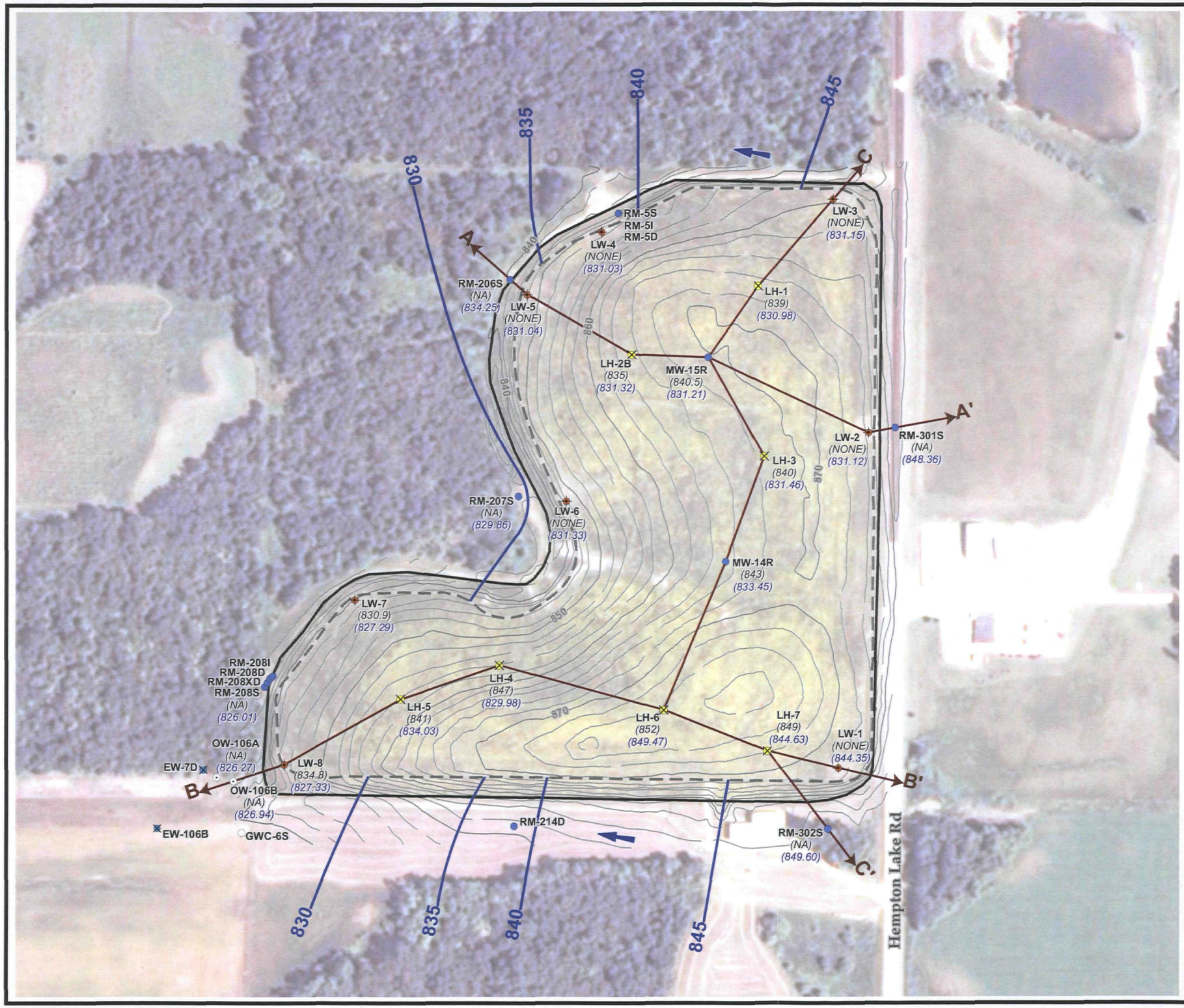
All units are in µg/L.

-- = Compound was not detected.

Trace concentrations of carbon disulfide and chloromethane were excluded for this summary.

Qualifiers not included when calculating BTEX value.

FIGURES



LEGEND

- GW COLLECTION SUMP (GWC)
- GW EXTRACTION WELL (EW)
- GW OBSERVATION WELL (OW)
- LEACHATE HEAD WELL (LH)
- LEACHATE WITHDRAWL WELL (LW)
- MONITORING WELL (RM)
- SLURRY WALL (APPROXIMATE)
- PERCHED WATER TABLE CONTOURS OUTSIDE OF THE SLURRY WALL (5' INTERVAL)
- CROSS SECTION LINES
- LANDFILL AREA (APPROXIMATE)
- *NA* — NOT APPLICABLE (WELL LOCATED OUTSIDE LANDFILL LIMITS)
- *NONE* — NO WASTE PRESENT AT LOCATION
- *(843)* — TOP NUMBER: BOTTOM OF WASTE ELEV., FT. MSL
- *(833.45)* — BOTTOM NUMBER: GROUNDWATER OR LEACHATE ELEV., FT. MSL
- GROUNDWATER FLOW DIRECTION

NOTES

1. AERIAL IMAGERY FROM USDA – NATIONAL AGRICULTURE IMAGERY PROGRAM, SUMMER, 2008.

0 200 400 FEET

1 " = 200 '
1:2,400

PROJECT:
LEMBERGER LANDFILL
TOWN OF FRANKLIN, WISCONSIN

SHEET TITLE:
PLAN VIEW / CROSS-SECTION LOCATOR

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CHECKED BY: JEW		FILE NO.	34594001.mxd
APPROVED BY: JMR	DATE PRINTED: FEB 0 2 2010	**FIGURE 1**	
DATE: FEBRUARY 2010			

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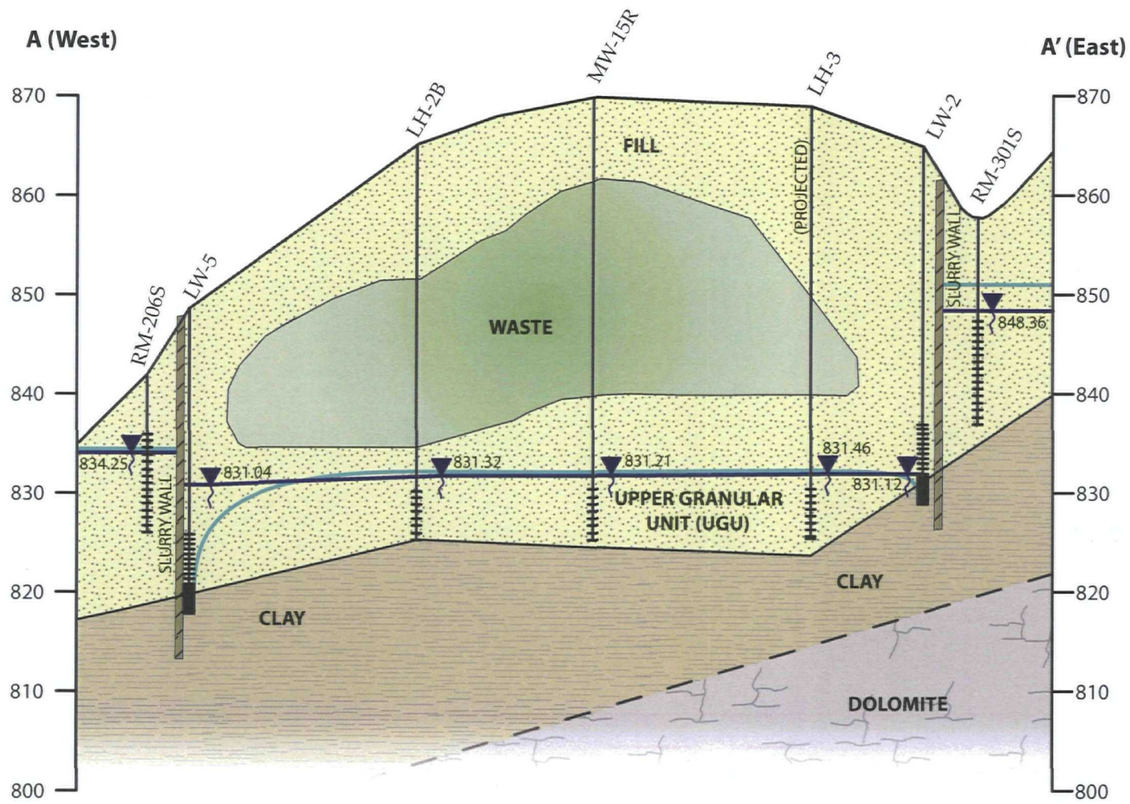
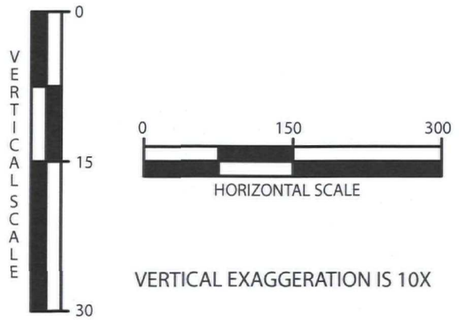


CROSS SECTION LEGEND

- GEOLOGIC CONTACT
- ESTIMATED WASTE BOUNDARY
- (848.28) GROUNDWATER OR LEACHATE ELEVATION, ft MSL
- WELL SCREEN
- 3' CLOSED SUMP
- CURRENT WATER LEVEL
- PREVIOUS WATER LEVEL

NOTES

"CURRENT" WATER ELEVATIONS MEASURED DECEMBER 2009.



VERTICAL EXAGGERATION IS 10X

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PROJECT: LEMBERGER LANDFILL
TOWN OF FRANKLIN, WISCONSIN

SHEET TITLE: CROSS SECTION A-A'

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DATE: FEBRUARY 2010	FEB 0 2 2010		

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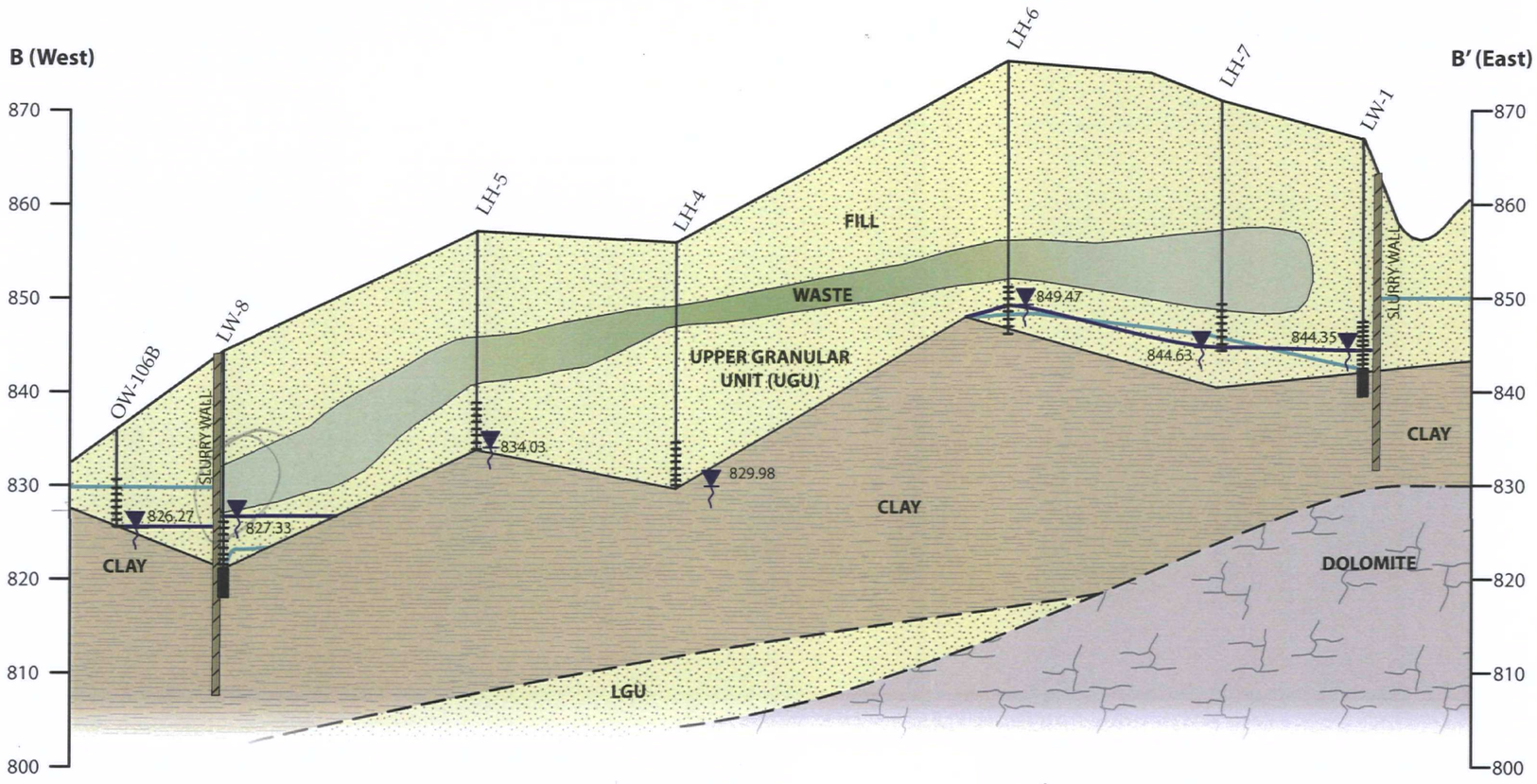

CROSS SECTION LEGEND

- GEOLOGIC CONTACT
- ESTIMATED WASTE BOUNDARY
- (848.28) GROUNDWATER OR LEACHATE ELEVATION, ft MSL
- WELL SCREEN
- 3' CLOSED SUMP
- CURRENT WATER LEVEL
- PREVIOUS WATER LEVEL

NOTES

"CURRENT" WATER ELEVATIONS MEASURED DECEMBER 2009.

VERTICAL SCALE 0 / 15 / 30

0 150 300
HORIZONTAL SCALE

VERTICAL EXAGGERATION IS 10X

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PROJECT:
LEMBERGER LANDFILL
TOWN OF FRANKLIN, WISCONSIN

SHEET TITLE:
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APPROVED BY:	JMR	DATE PRINTED:	**FIGURE 3**
DATE:	FEBRUARY 2010	FEB 02 2010	

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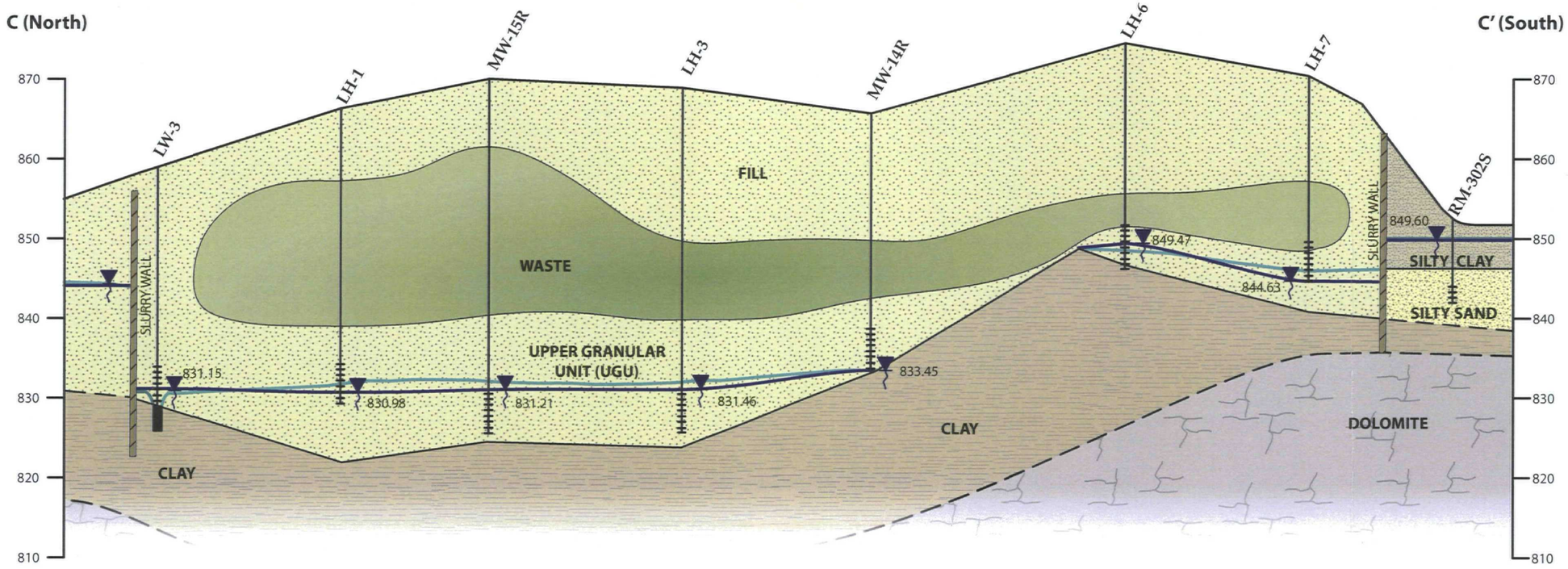
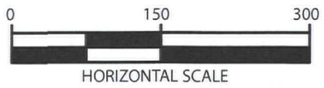
CROSS SECTION LEGEND

- GEOLOGIC CONTACT
- ESTIMATED WASTE BOUNDARY
- (848.28) GROUNDWATER OR LEACHATE ELEVATION, ft MSL
- WELL SCREEN
- 3' CLOSED SUMP
- CURRENT WATER LEVEL
- PREVIOUS WATER LEVEL

NOTES

"CURRENT" WATER ELEVATIONS MEASURED DECEMBER 2009.





VERTICAL EXAGGERATION IS 10X

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PROJECT:
LEMBERGER LANDFILL
TOWN OF FRANKLIN, WISCONSIN

SHEET TITLE:
CROSS SECTION C-C'

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APPROVED BY: JMR	DATE PRINTED:		**FIGURE 4**
DATE: FEBRUARY 2010	FEB 0 2 2010		

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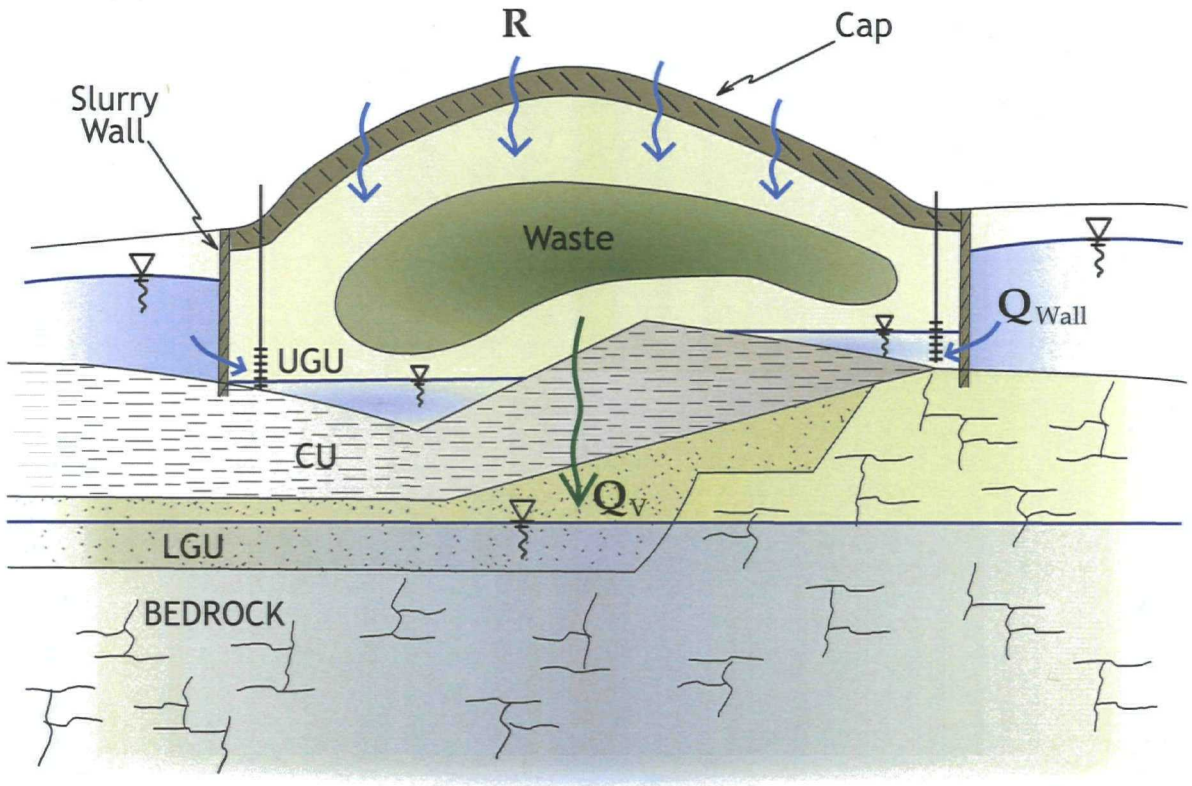
REVISED
LEMBERGER LANDFILL
CONCEPTUAL LIQUIDS BALANCE



$$\Delta S \approx R + Q_{Wall} - Q_V$$

ΔS = Change in Storage

R = Recharge

Q_{Wall} = Seepage Through Slurry Wall

Q_V = Vertical Drainage Out of Landfill

NOTE: This drawing was revised to remove the extraction component (Q_{EX}) due to results of the recent monitoring effort.

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LEMBERGER LANDFILL
TOWN OF FRANKLIN, WISCONSIN

REVISED LANDFILL LIQUIDS BALANCE

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PROJECT NO:	3459.40
FILE NO.	345940xsec04.ai
DATE:	FEBRUARY 2010

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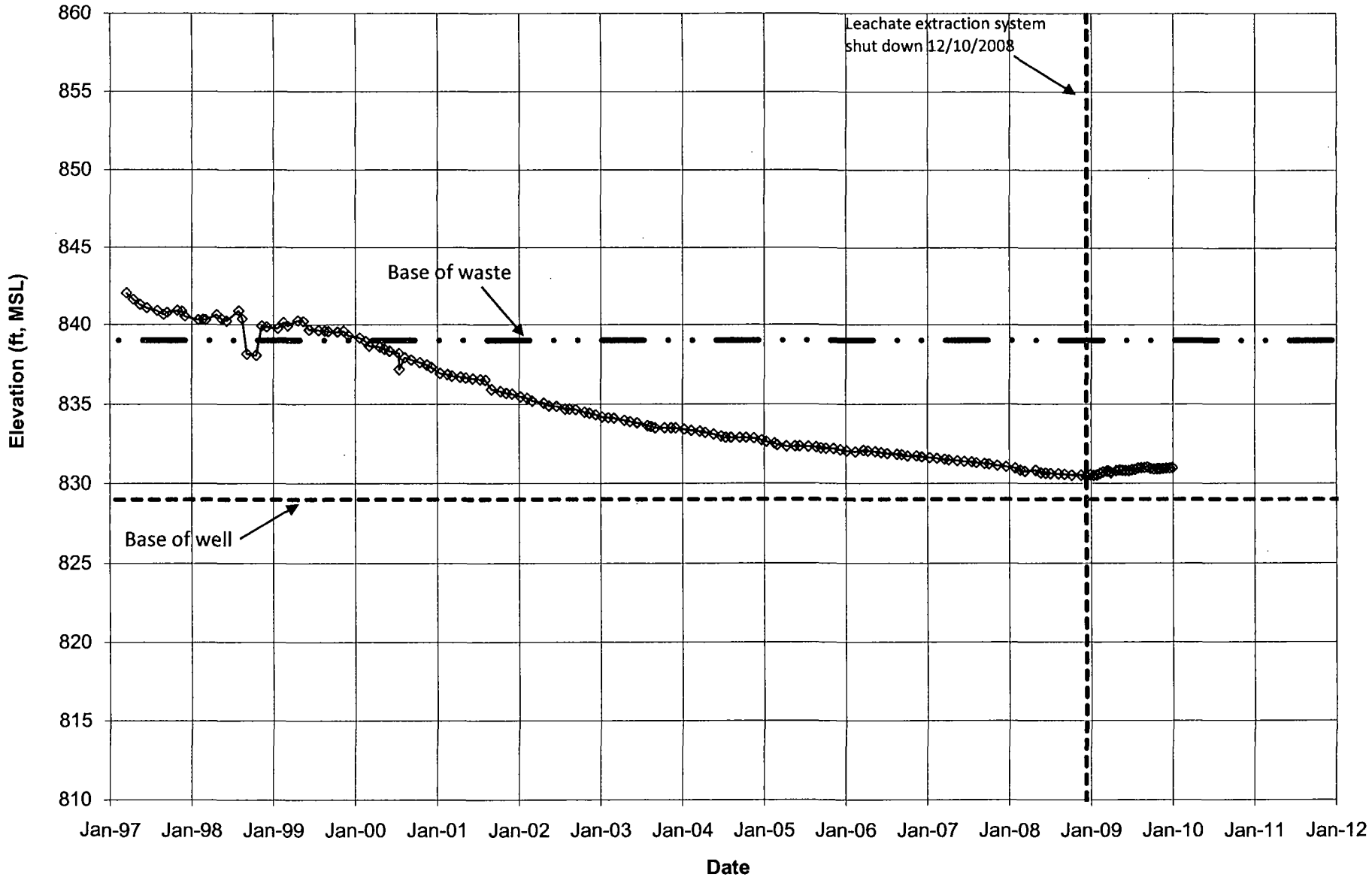
FIGURE 5

Attachment 1
Hydrographs for Leachate Head Wells, Leachate Extraction Wells, and Shallow Monitoring Wells in the Vicinity of the Lemberger Landfill

Lemberger Landfill
Leachate/Groundwater Head Levels
LH-01



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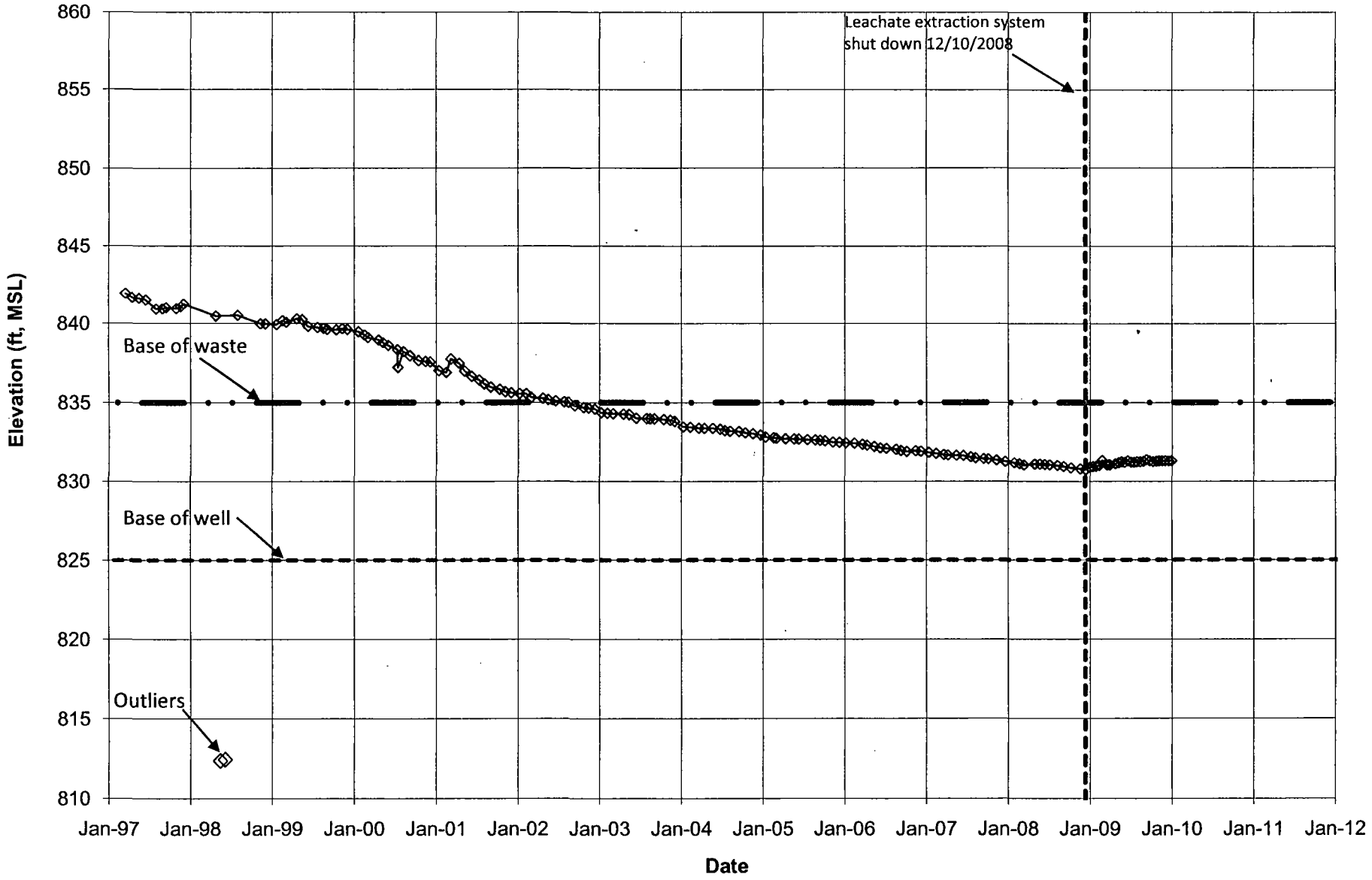
Lemberger Landfill
Leachate/Groundwater Head Levels
LH-02B



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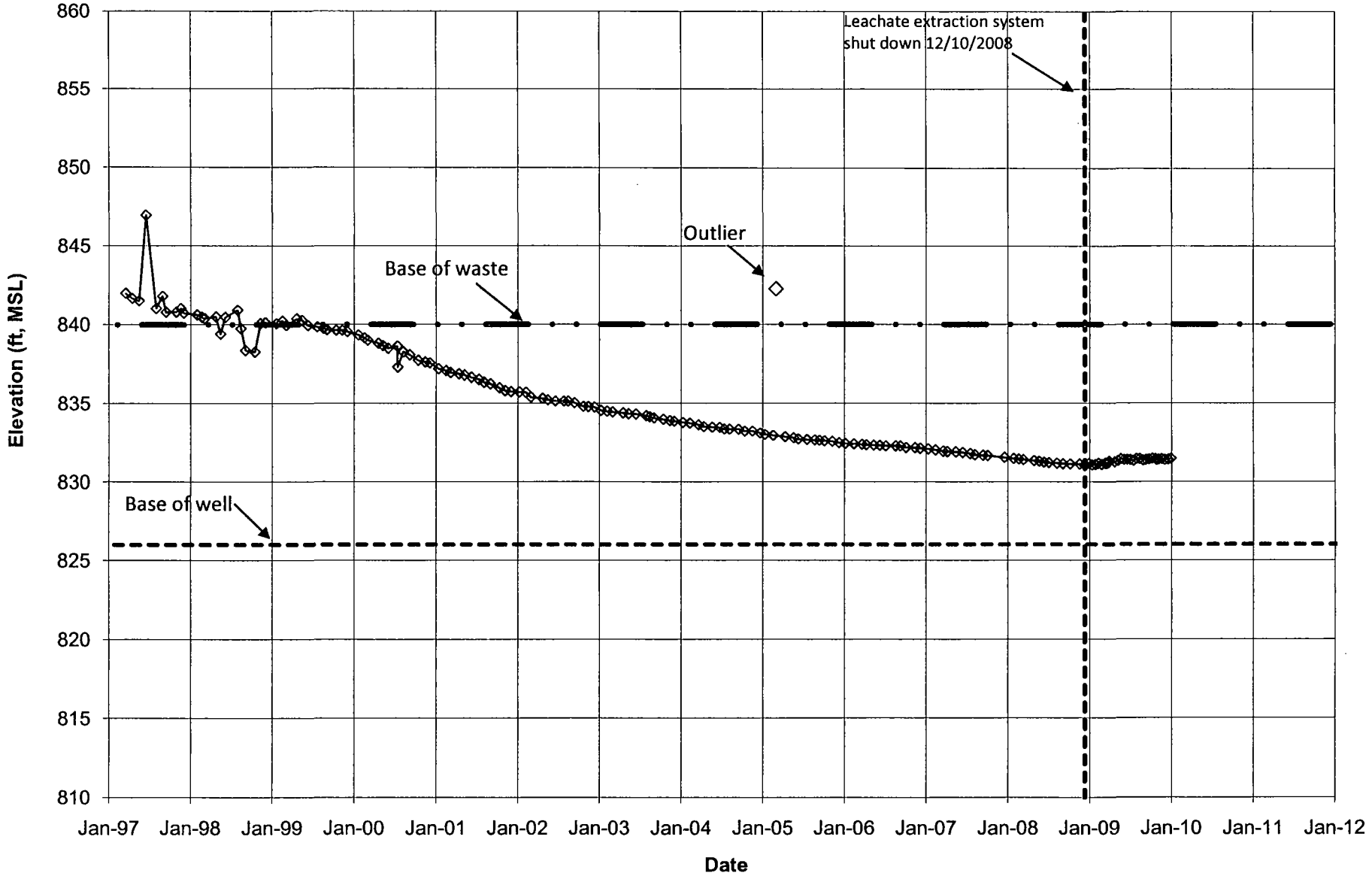
Lemberger Landfill
Leachate/Groundwater Head Levels
LH-03



Prepared by RMT 2/2/2010

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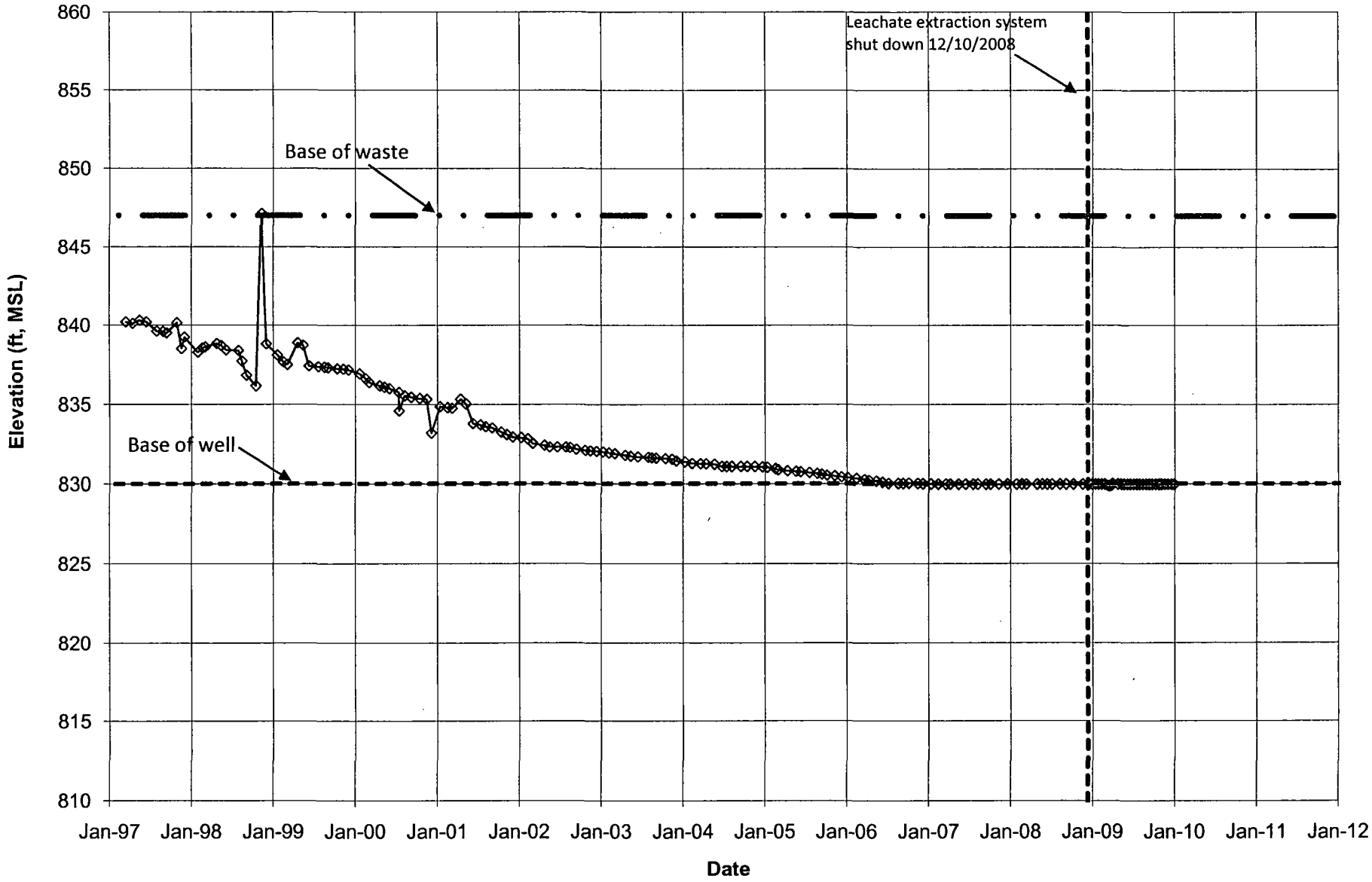
Lemberger Landfill
Leachate/Groundwater Head Levels
LH-04



Prepared by RMT 2/2/2010

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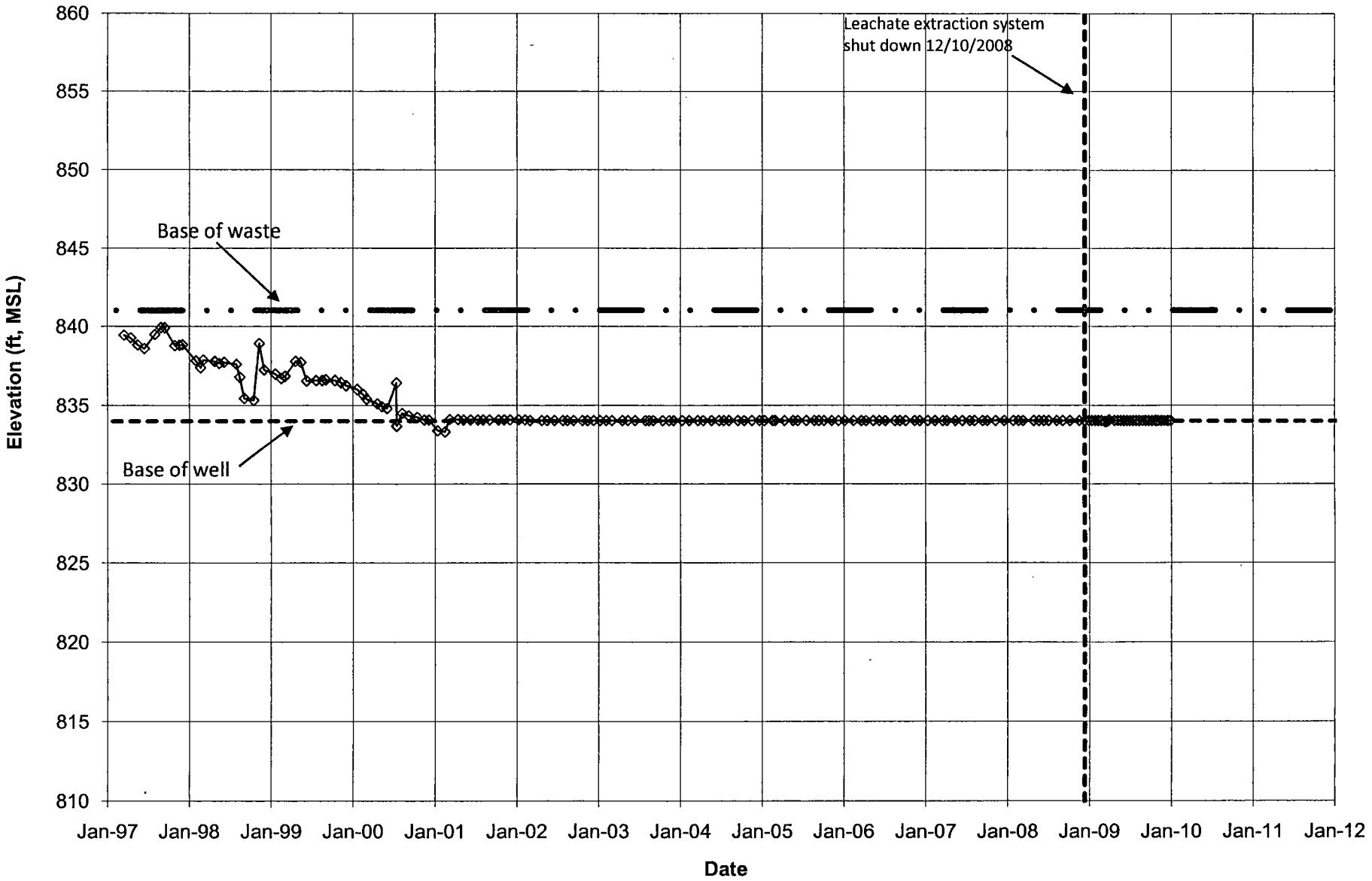
Lemberger Landfill
Leachate/Groundwater Head Levels
LH-05



Prepared by RMT 2/2/2010

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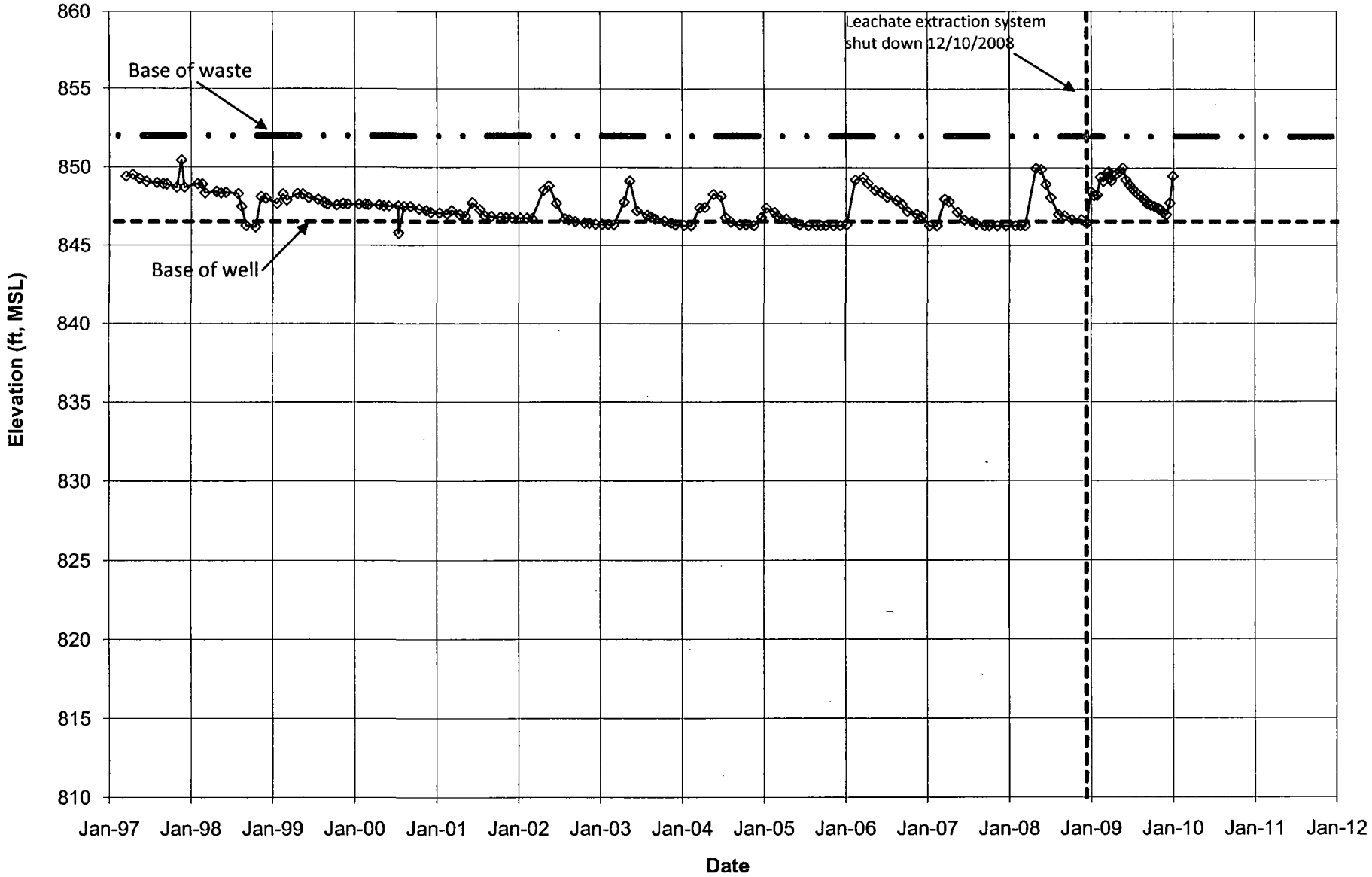
Lemberger Landfill
Leachate/Groundwater Head Levels
LH-06



Prepared by RMT 2/2/2010

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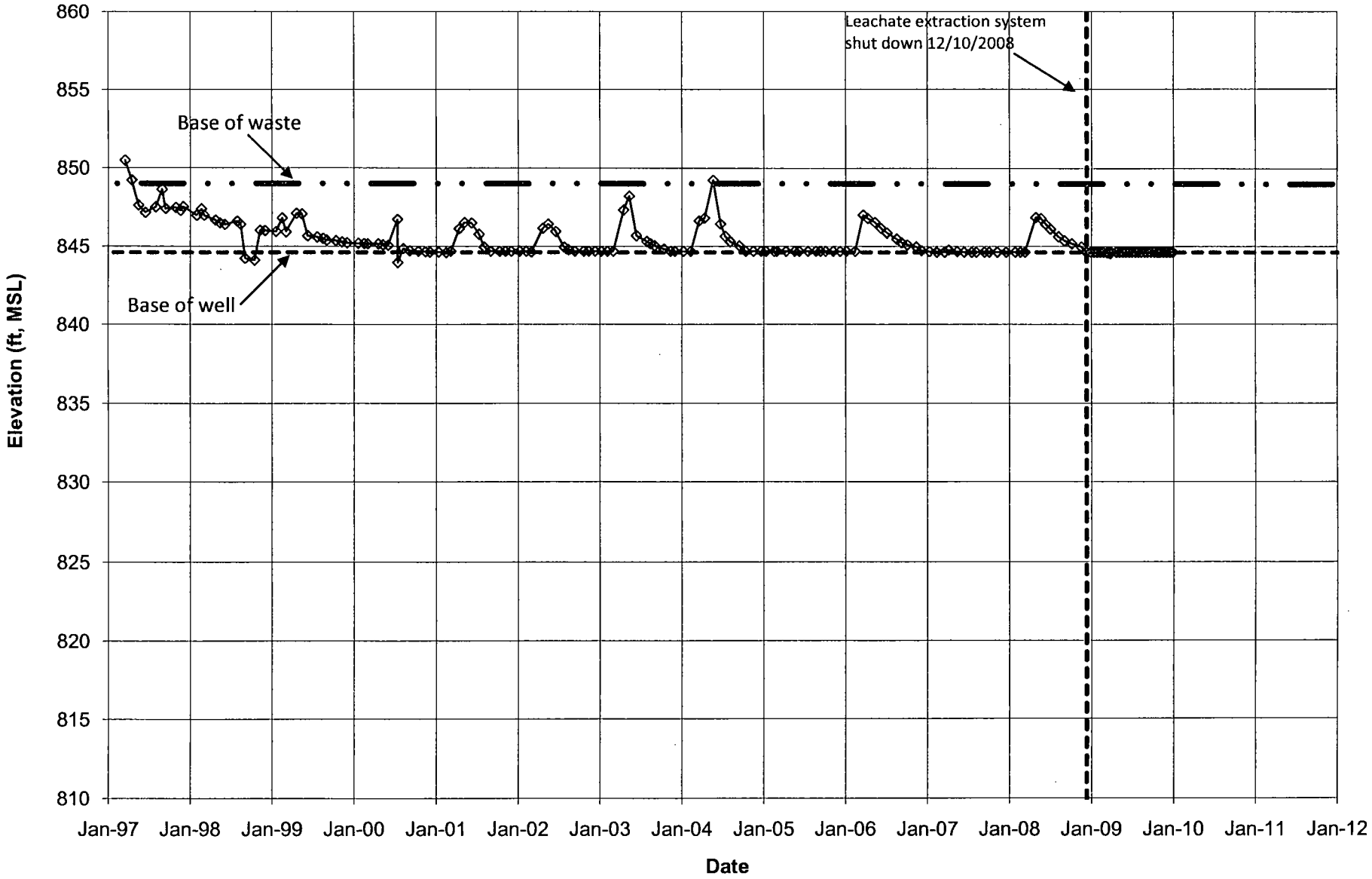
Lemberger Landfill
Leachate/Groundwater Head Levels
LH-07



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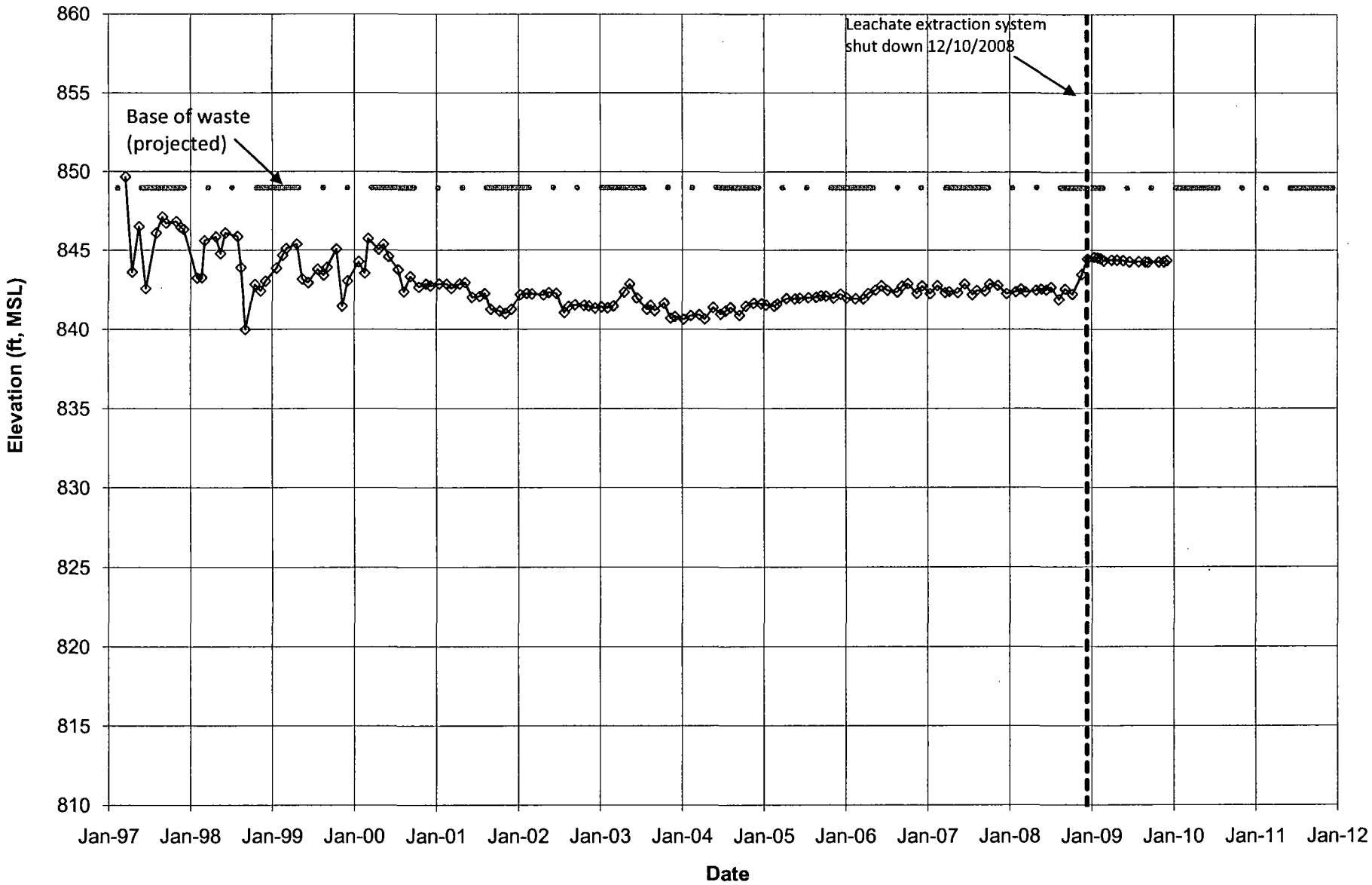
Lemberger Landfill
Leachate/Groundwater Head Levels
LW-01



Prepared by RMT 2/2/2010

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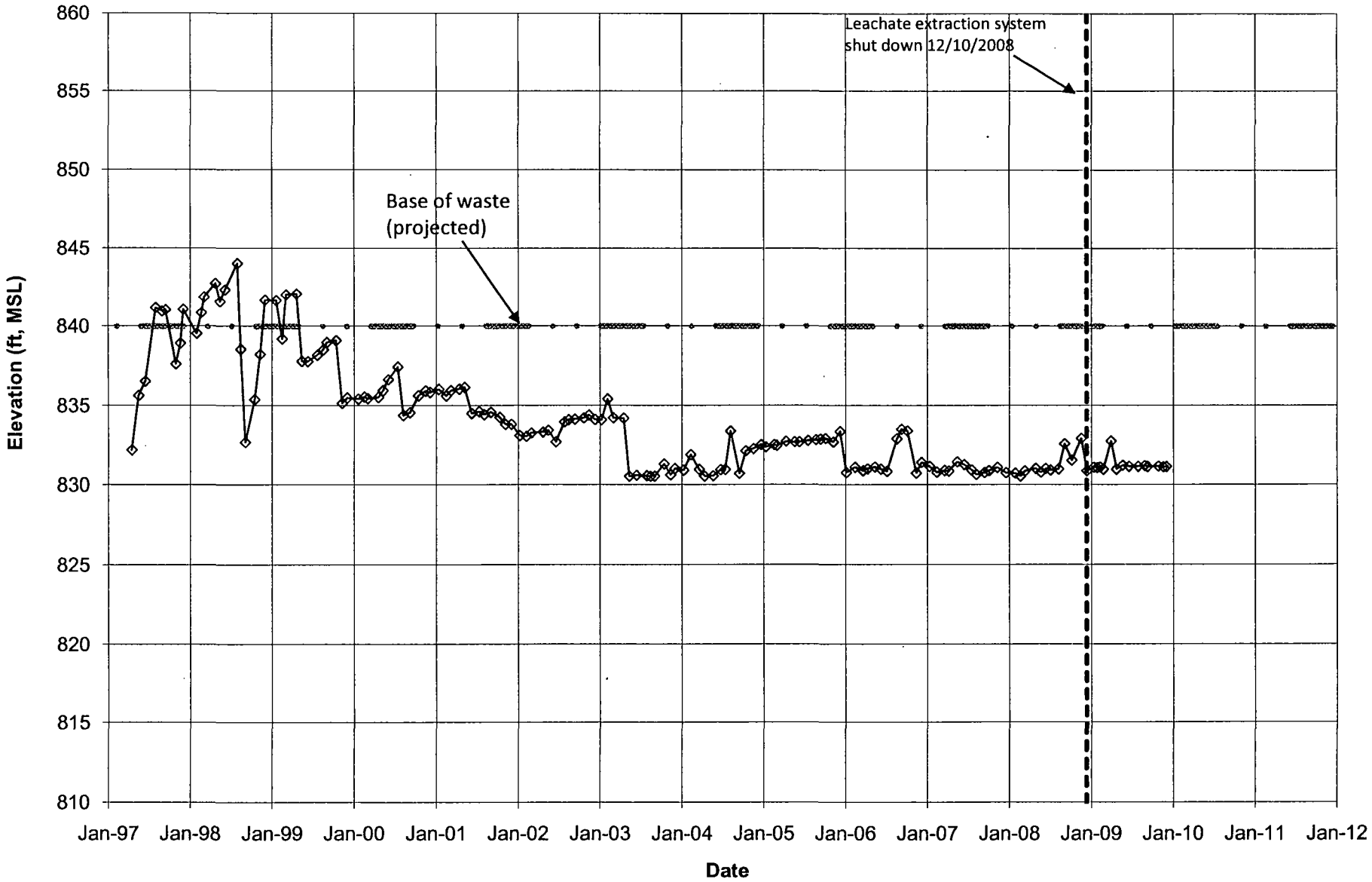
Lemberger Landfill
Leachate/Groundwater Head Levels
LW-02



Prepared by RMT 2/2/2010

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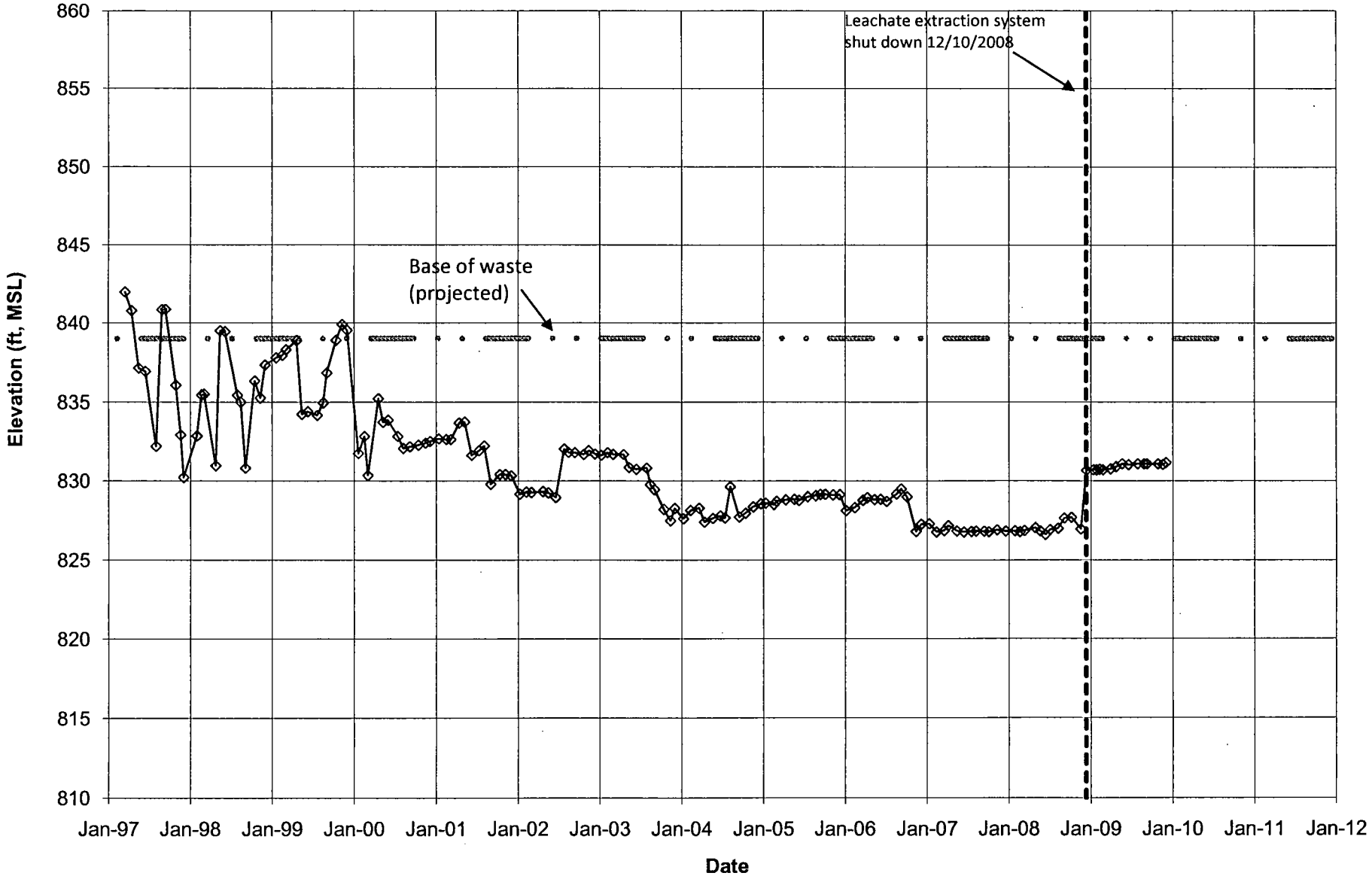
Lemberger Landfill
Leachate/Groundwater Head Levels
LW-03



Prepared by RMT 2/2/2010

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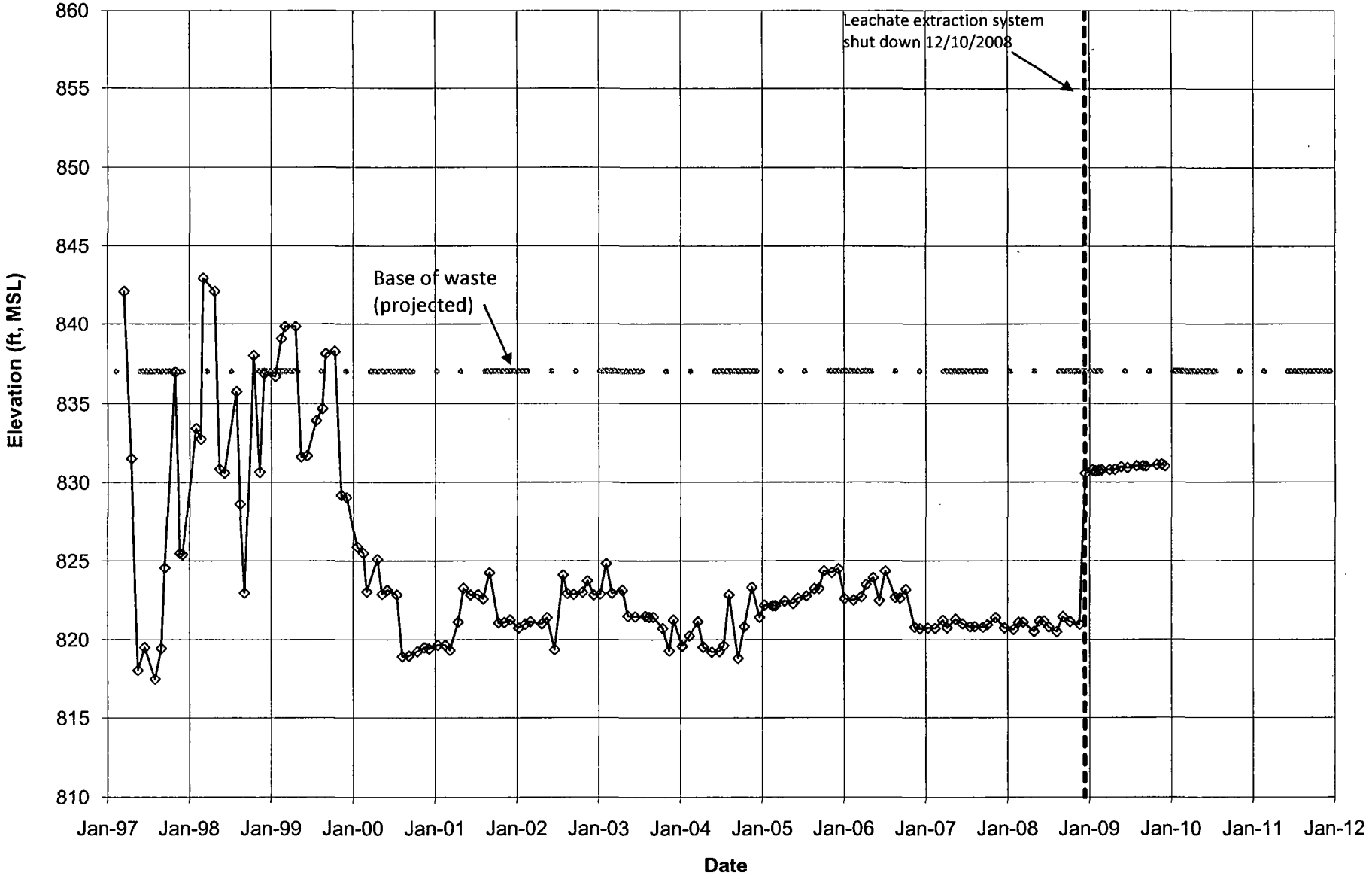
Lemberger Landfill
Leachate/Groundwater Head Levels
LW-04



Prepared by RMT 2/2/2010

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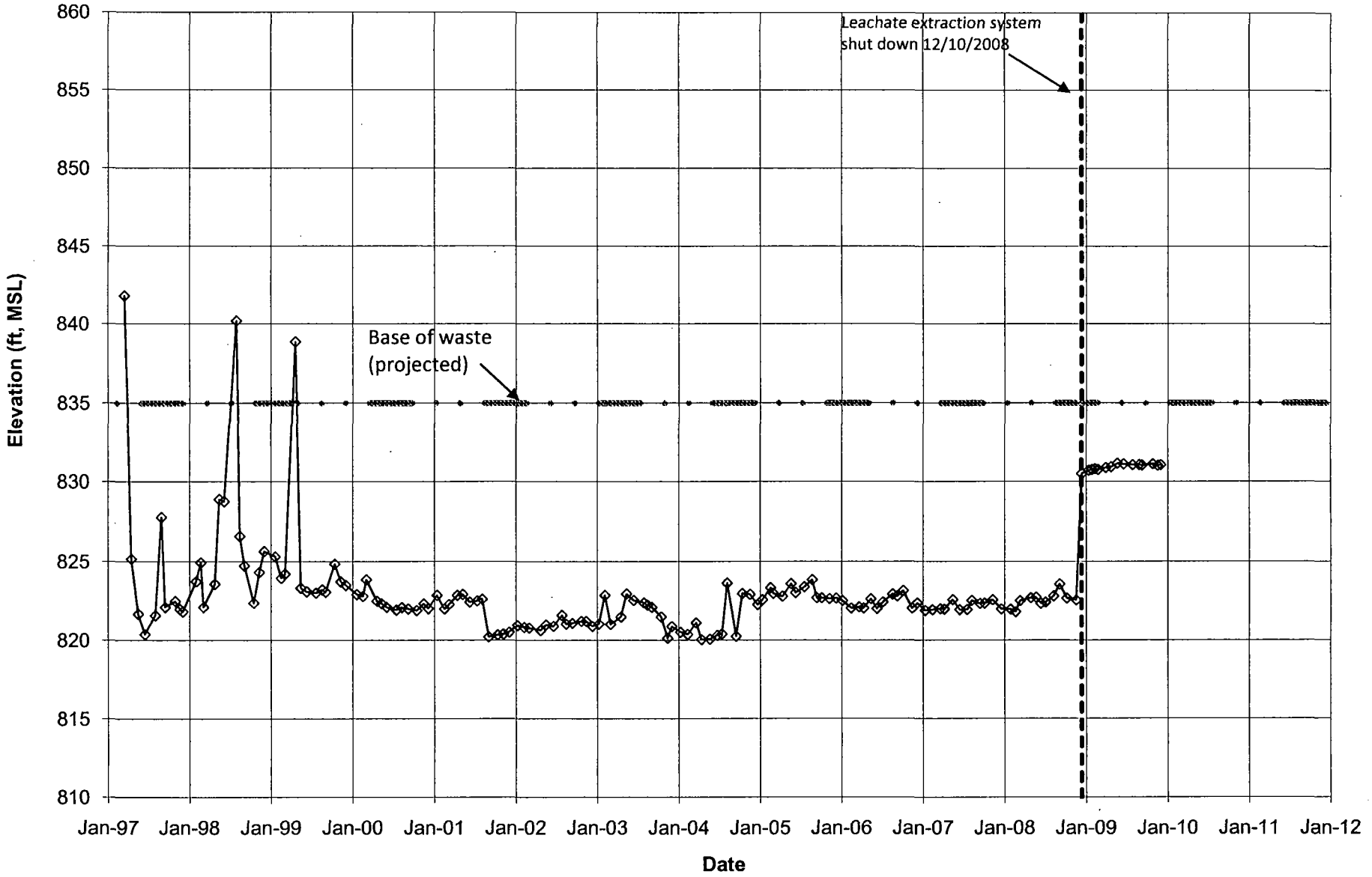
Lemberger Landfill
Leachate/Groundwater Head Levels
LW-05



Prepared by RMT 2/2/2010

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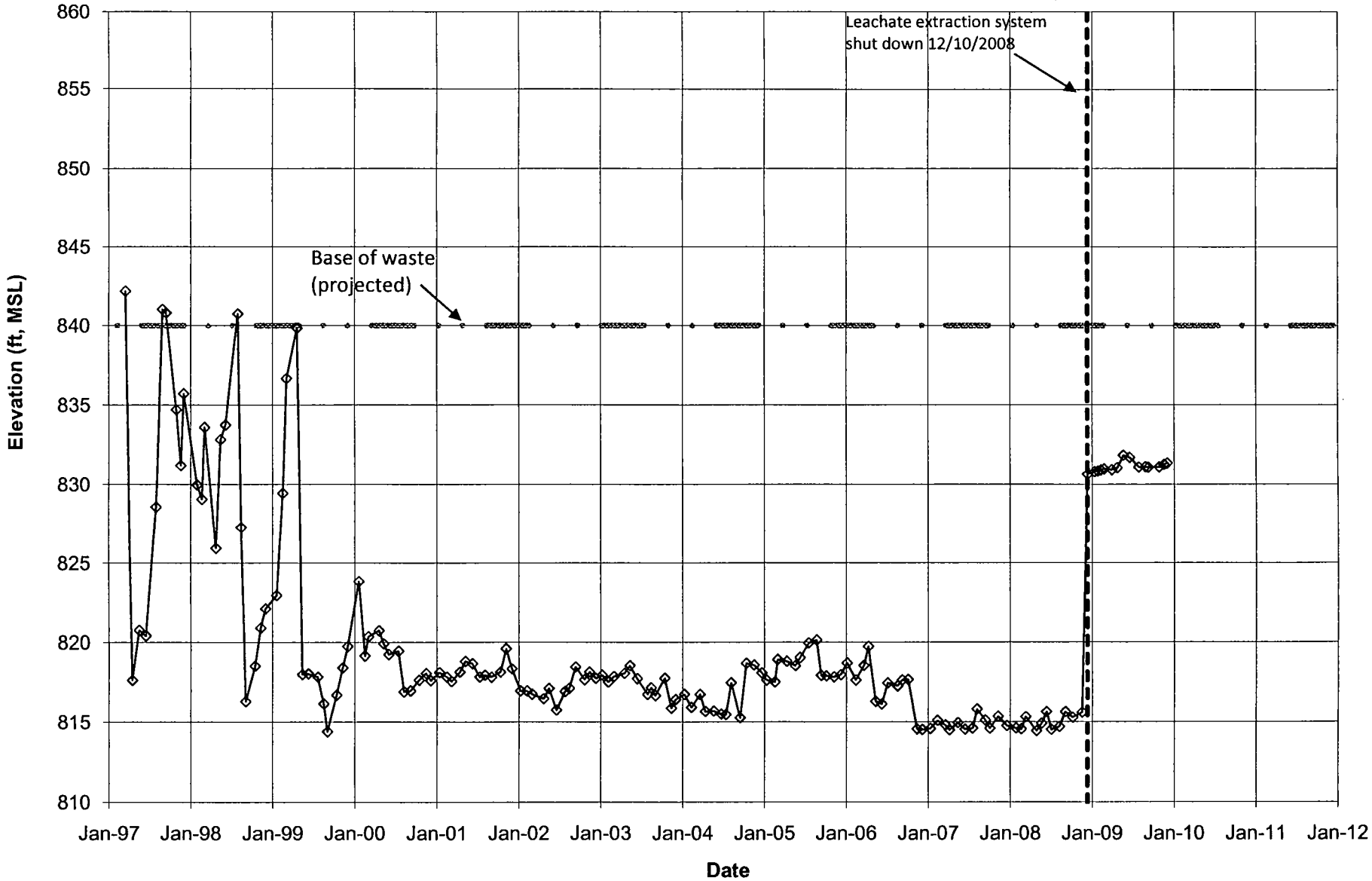
Lemberger Landfill
Leachate/Groundwater Head Levels
LW-06



Prepared by RMT 2/2/2010

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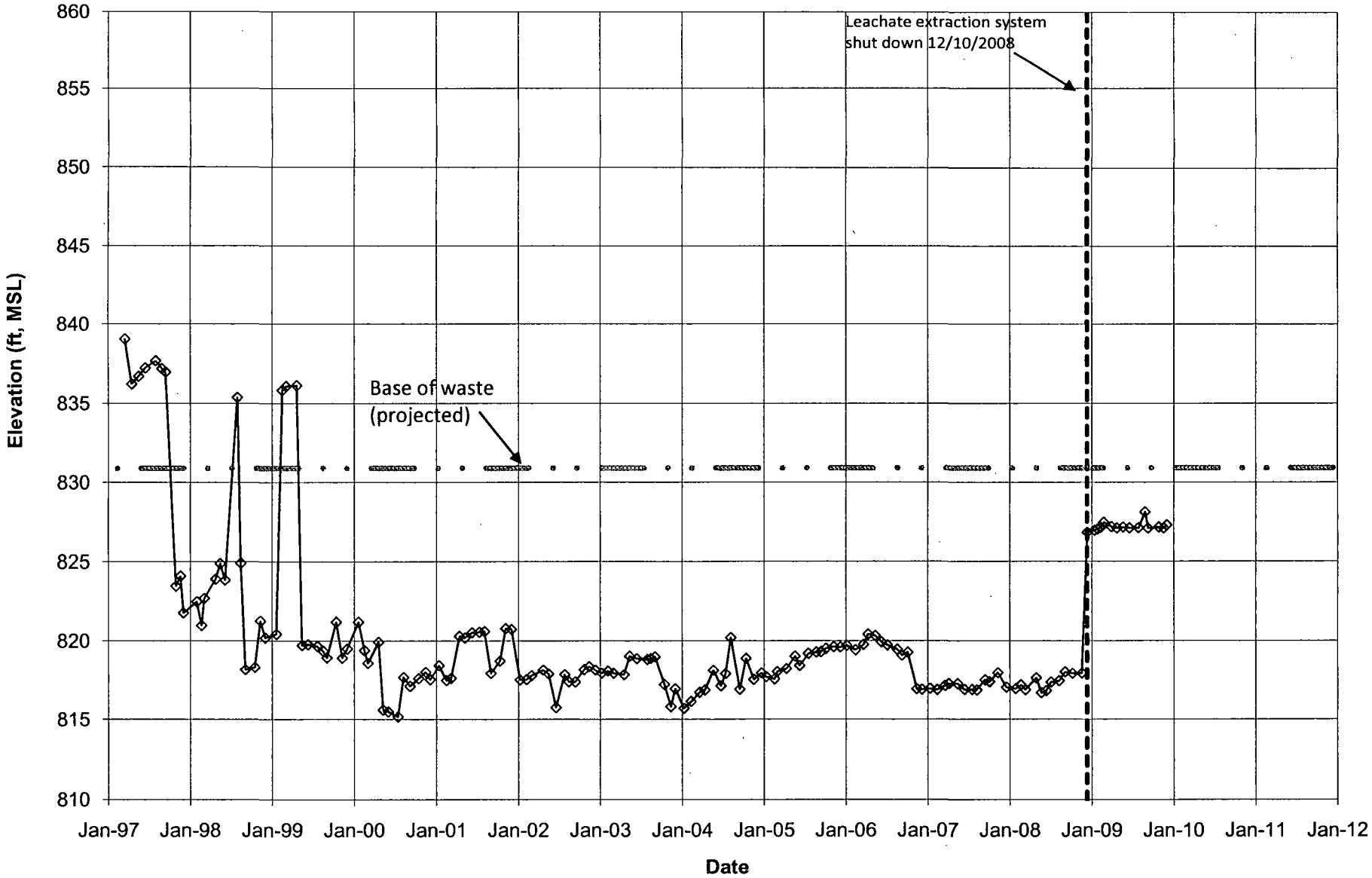
Lemberger Landfill
Leachate/Groundwater Head Levels
LW-07



Prepared by RMT 2/2/2010

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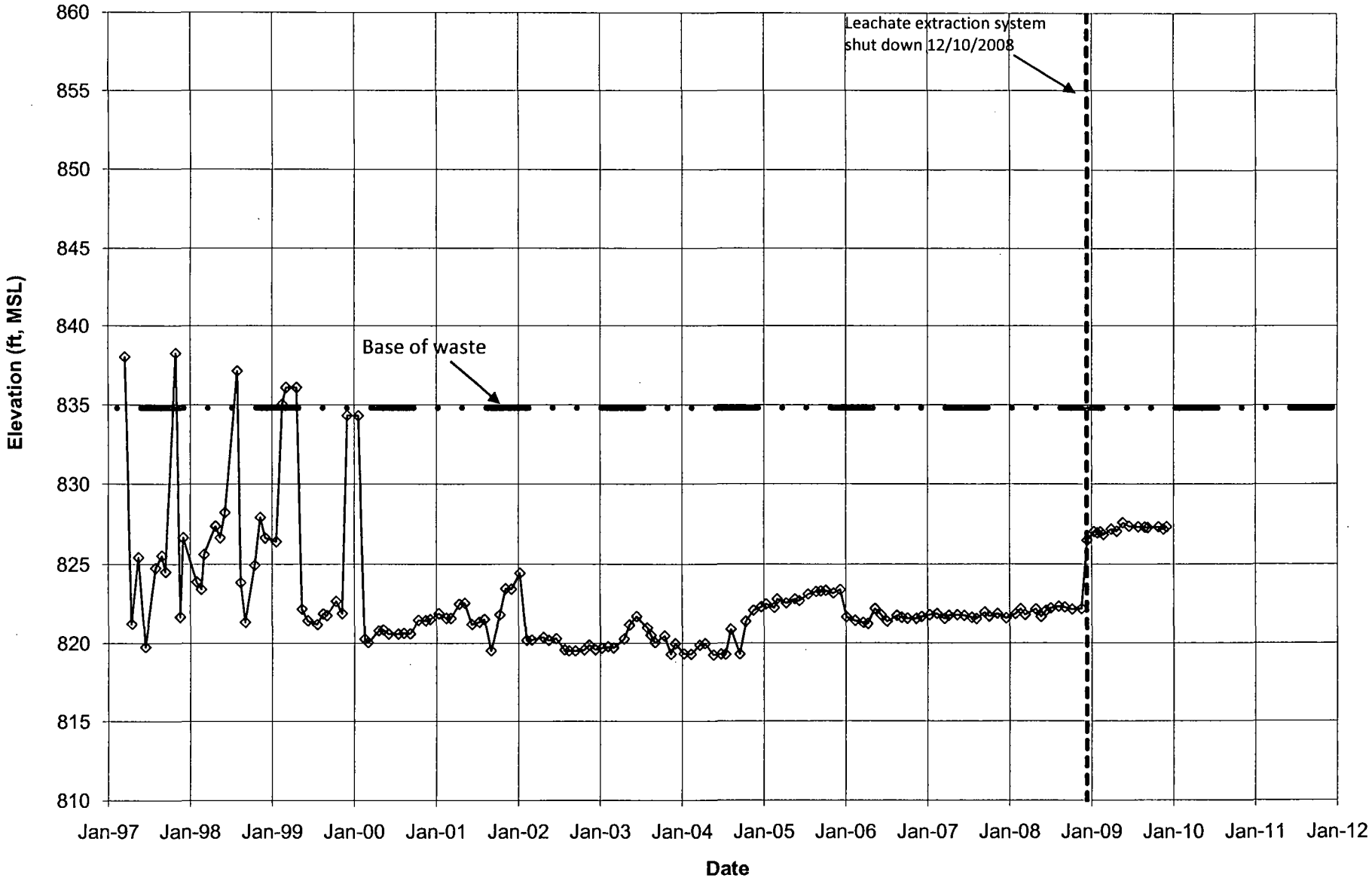
Lemberger Landfill
Leachate/Groundwater Head Levels
LW-08



Prepared by RMT 2/2/2010

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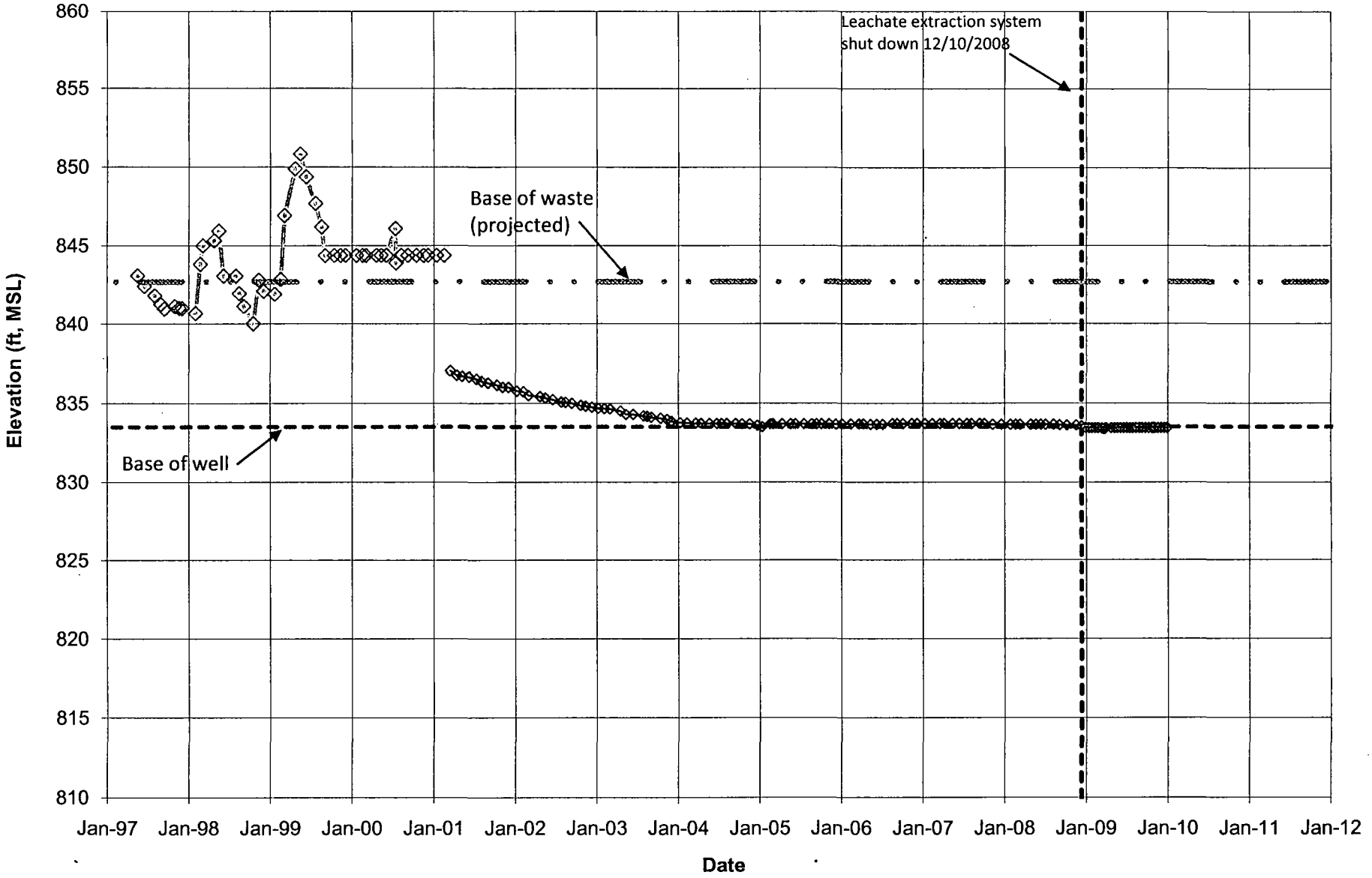
Lemberger Landfill
Leachate/Groundwater Head Levels
MW-14/MW-14R



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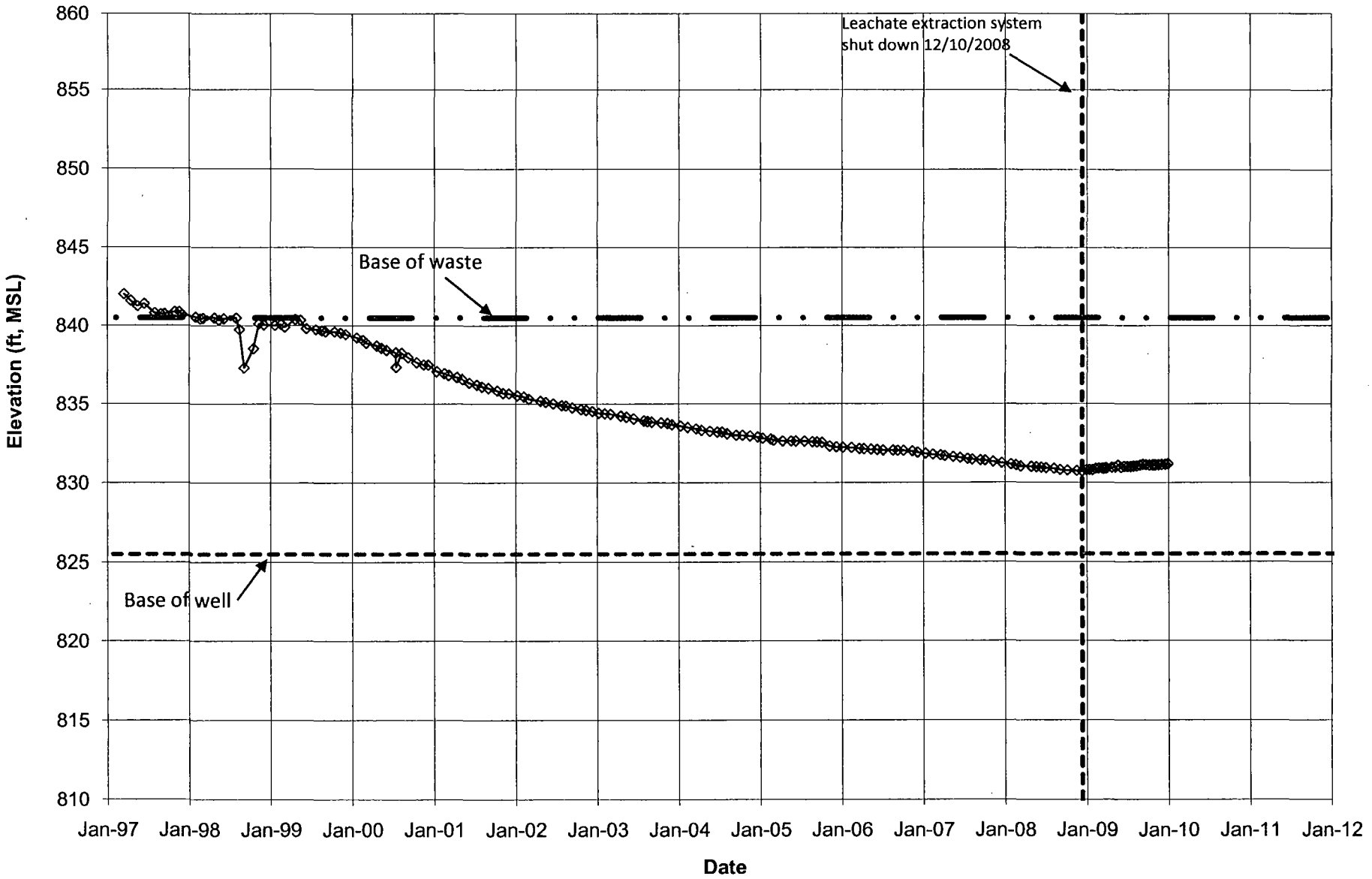
Lemberger Landfill
Leachate/Groundwater Head Levels
MW-15R



Prepared by RMT 2/2/2010

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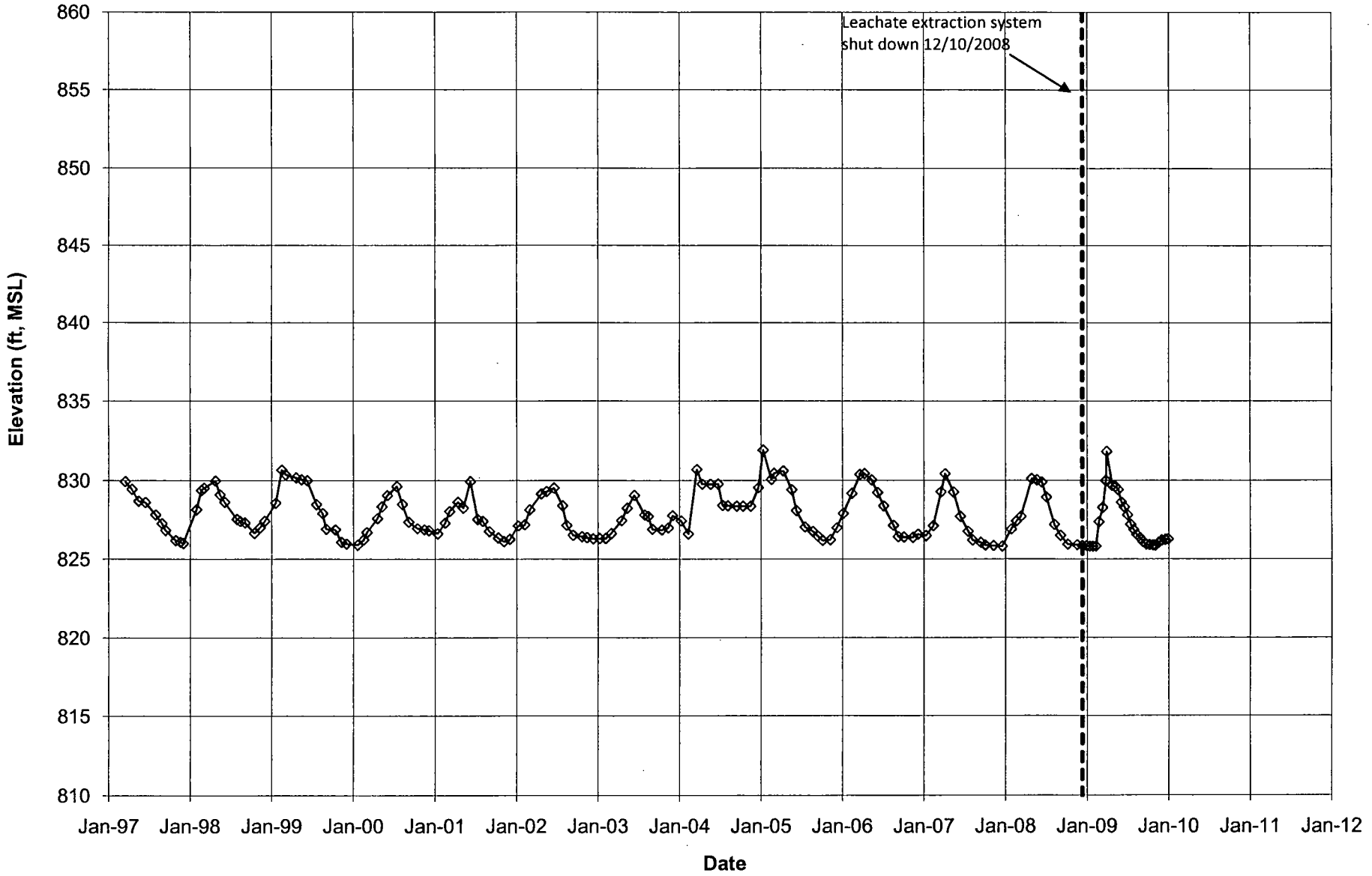
Lemberger Landfill
Leachate/Groundwater Head Levels
OW-106A



Prepared by RMT 2/2/2010

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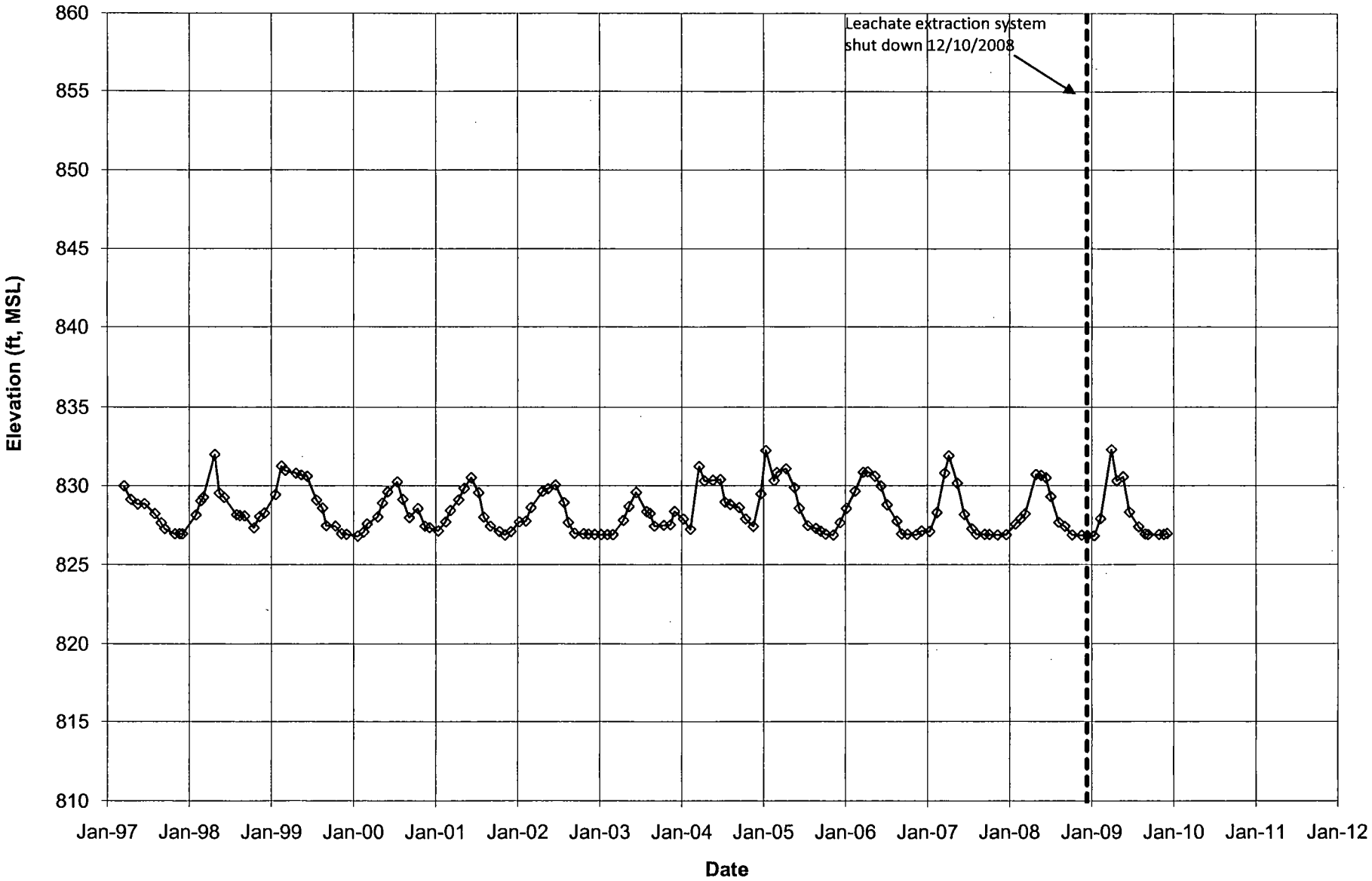
Lemberger Landfill
Leachate/Groundwater Head Levels
OW-106B



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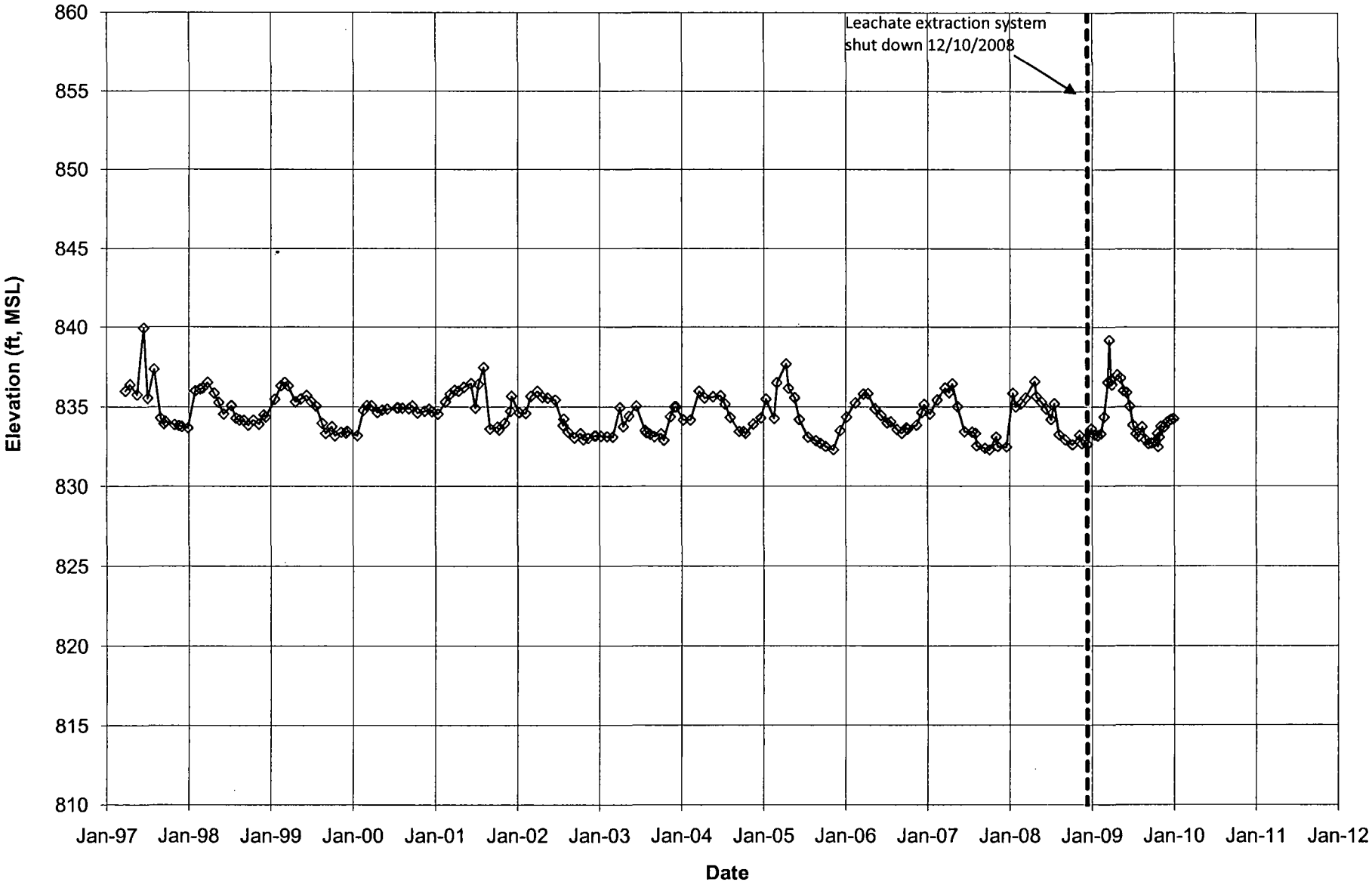
Lemberger Landfill
Leachate/Groundwater Head Levels
RM-206S



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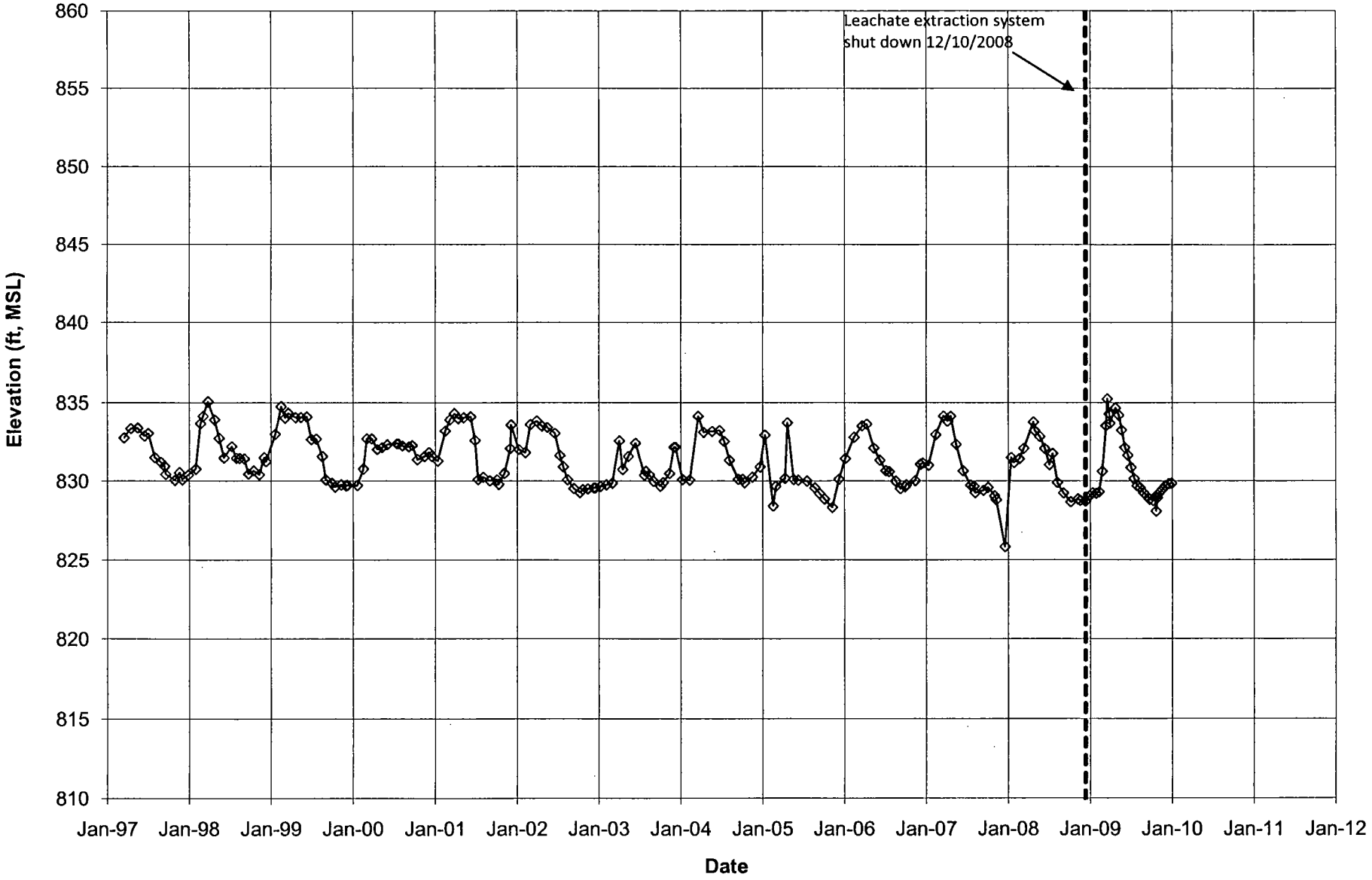
Lemberger Landfill
Leachate/Groundwater Head Levels
RM-207S



Prepared by RMT 2/2/2010

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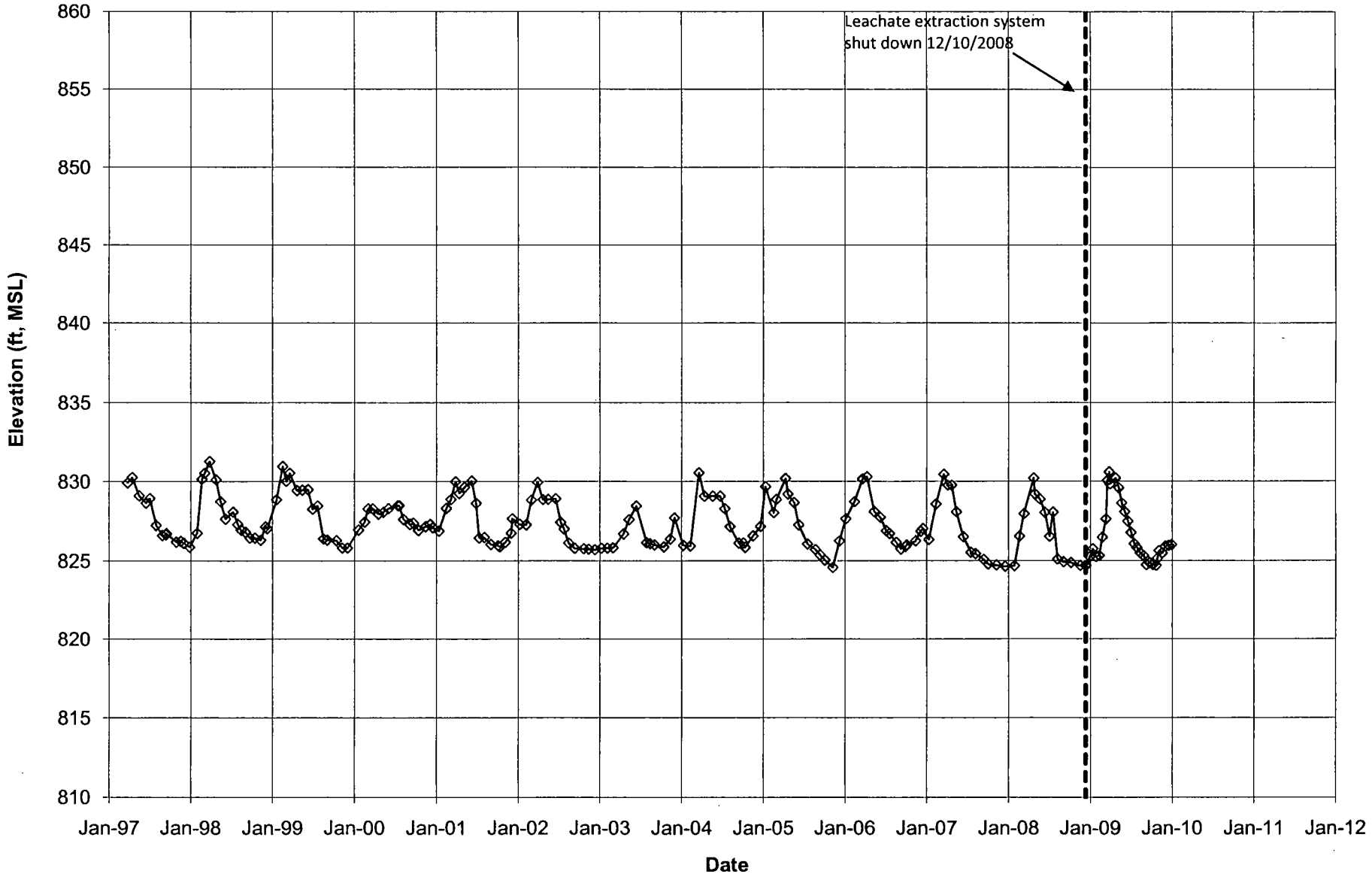
Lemberger Landfill
Leachate/Groundwater Head Levels
RM-208S



Prepared by RMT 2/2/2010

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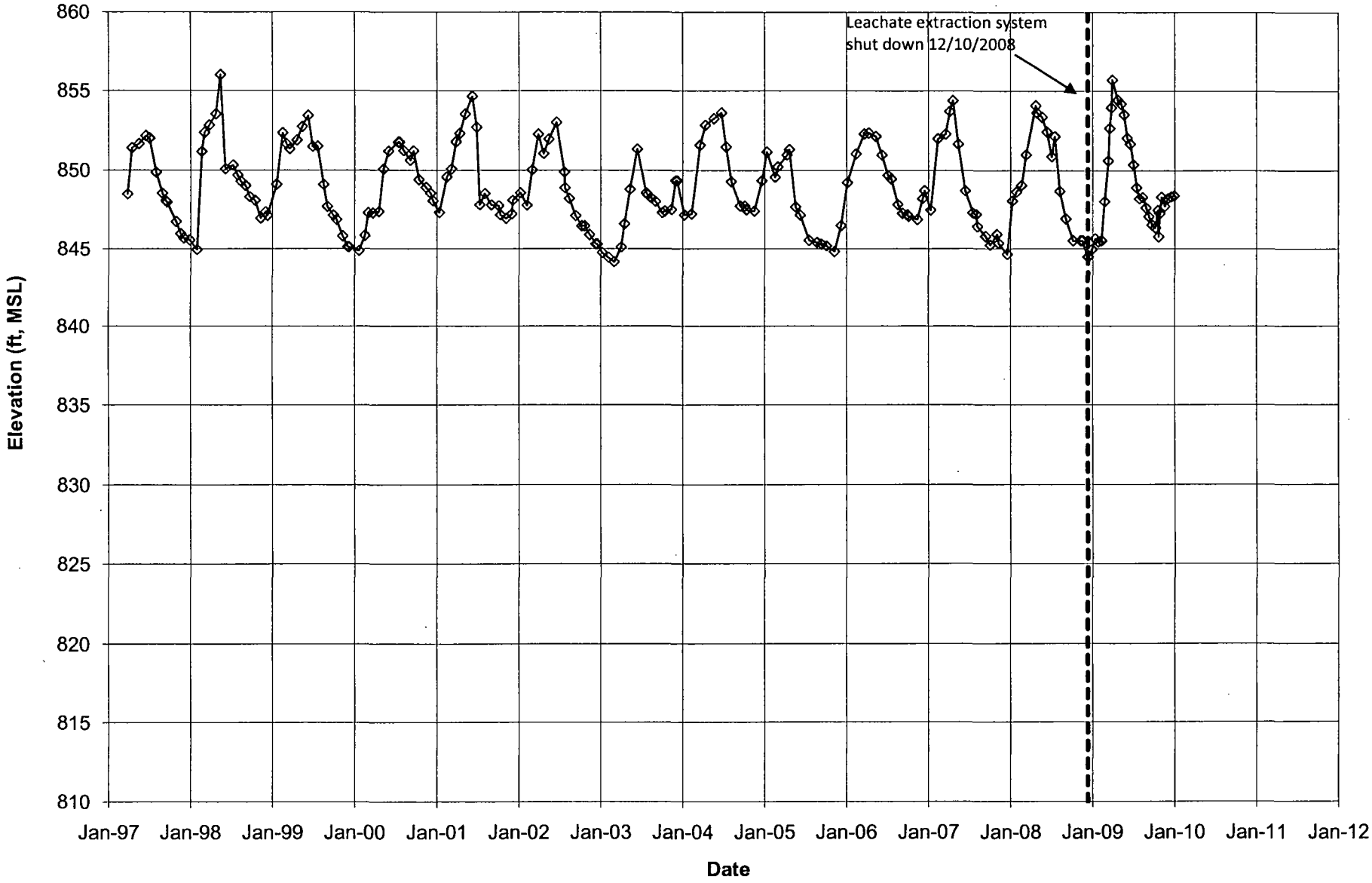
Lemberger Landfill
Leachate/Groundwater Head Levels
RM-301S



Prepared by RMT 2/2/2010

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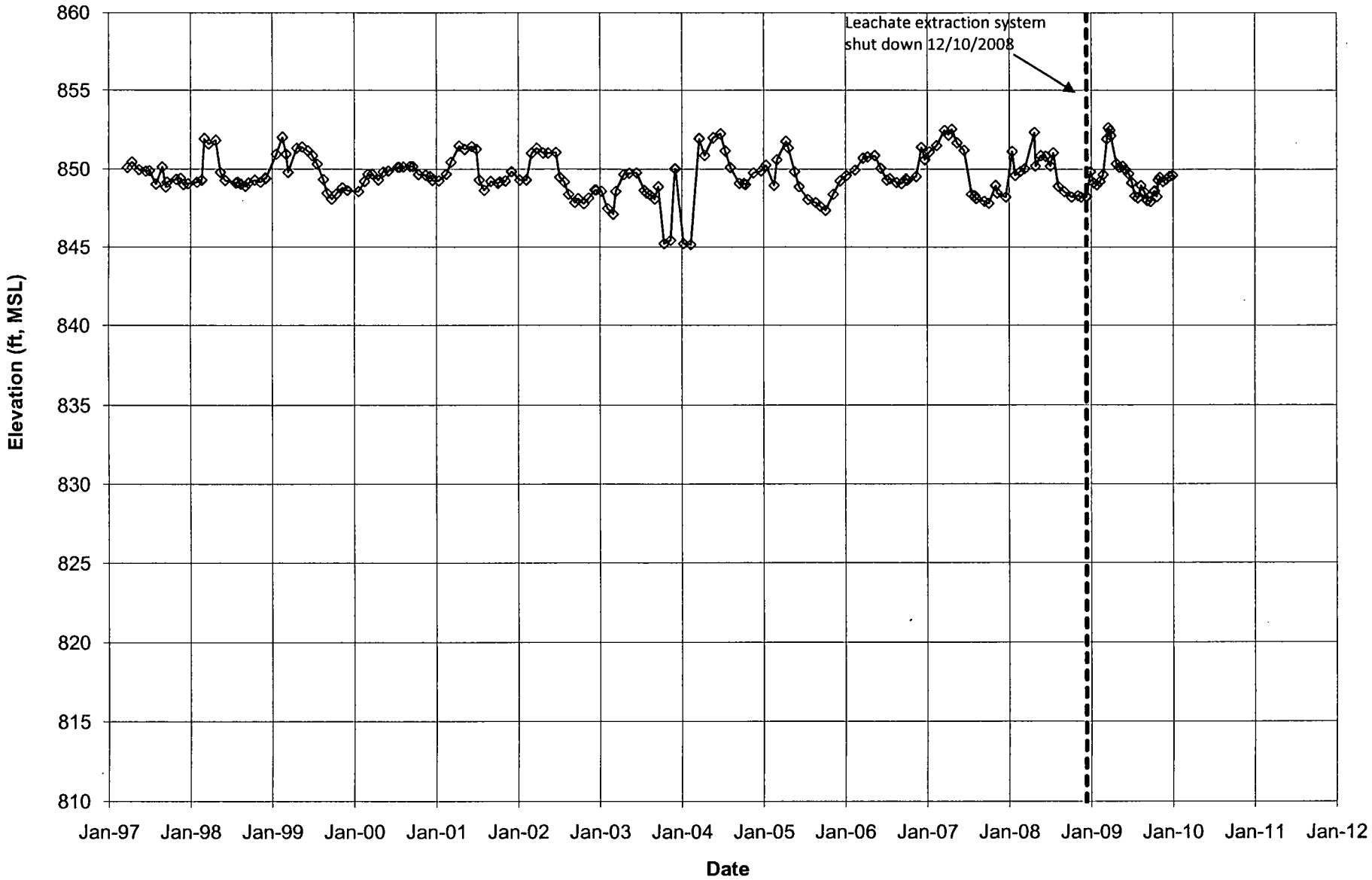
Lemberger Landfill
Leachate/Groundwater Head Levels
RM-302S



Prepared by RMT 2/2/2010

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Attachment 2
2008 Leachate Analytical Data

LAB DATA

SAMPLEID	SAMPLEDATE	PARMNAME	DELIMITER	DL	CONC	UNITS	QUAL
LH-01	12/2/2008	1,1,1-TRICHLOROETHANE	<	0.9		UG/L	
LH-01	12/2/2008	1,1,2,2-TETRACHLOROETHANE	<	0.2		UG/L	
LH-01	12/2/2008	1,1,2-TRICHLOROETHANE	<	0.42		UG/L	
LH-01	12/2/2008	1,1-DICHLOROETHANE	<	0.75		UG/L	
LH-01	12/2/2008	1,1-DICHLOROETHENE	<	0.57		UG/L	
LH-01	12/2/2008	1,2-DICHLOROETHANE	<	0.36		UG/L	
LH-01	12/2/2008	1,2-DICHLOROPROPANE	<	0.49		UG/L	
LH-01	12/2/2008	2-BUTANONE	<	4.3		UG/L	
LH-01	12/2/2008	2-HEXANONE	<	2		UG/L	
LH-01	12/2/2008	4-METHYL-2-PENTANONE	<	1.2		UG/L	
LH-01	12/2/2008	ACETONE		5	10.2	UG/L	J
LH-01	12/2/2008	BENZENE		0.41	0.65	UG/L	J
LH-01	12/2/2008	BROMODICHLOROMETHANE	<	0.56		UG/L	
LH-01	12/2/2008	BROMOFORM	<	0.94		UG/L	
LH-01	12/2/2008	BROMOMETHANE	<	0.91		UG/L	
LH-01	12/2/2008	CARBON DISULFIDE	<	0.66		UG/L	
LH-01	12/2/2008	CARBON TETRACHLORIDE	<	0.49		UG/L	
LH-01	12/2/2008	CHLOROBENZENE	<	0.41		UG/L	
LH-01	12/2/2008	CHLORODIBROMOMETHANE	<	0.81		UG/L	
LH-01	12/2/2008	CHLOROETHANE	<	0.97		UG/L	
LH-01	12/2/2008	CHLOROFORM	<	1.3		UG/L	
LH-01	12/2/2008	CHLOROMETHANE	<	0.24		UG/L	
LH-01	12/2/2008	CIS-1,2-DICHLOROETHENE	<	0.83		UG/L	
LH-01	12/2/2008	CIS-1,3-DICHLOROPROPENE	<	0.2		UG/L	
LH-01	12/2/2008	ETHYLBENZENE	<	0.54		UG/L	
LH-01	12/2/2008	METHYLENE CHLORIDE		0.43		UG/L	Ju
LH-01	12/2/2008	STYRENE	<	0.86		UG/L	
LH-01	12/2/2008	TETRACHLOROETHENE	<	0.45		UG/L	
LH-01	12/2/2008	TOLUENE	<	0.67		UG/L	
LH-01	12/2/2008	TRANS-1,2-DICHLOROETHENE	<	0.89		UG/L	
LH-01	12/2/2008	TRANS-1,3-DICHLOROPROPENE	<	0.19		UG/L	
LH-01	12/2/2008	TRICHLOROETHENE	<	0.48		UG/L	
LH-01	12/2/2008	VINYL CHLORIDE	<	0.18		UG/L	
LH-01	12/2/2008	XYLENE, TOTAL	<	2.6		UG/L	
LH-02B	12/3/2008	1,1,1-TRICHLOROETHANE	<	0.9		UG/L	
LH-02B	12/3/2008	1,1,2,2-TETRACHLOROETHANE	<	0.2		UG/L	
LH-02B	12/3/2008	1,1,2-TRICHLOROETHANE	<	0.42		UG/L	
LH-02B	12/3/2008	1,1-DICHLOROETHANE	<	0.75		UG/L	
LH-02B	12/3/2008	1,1-DICHLOROETHENE	<	0.57		UG/L	
LH-02B	12/3/2008	1,2-DICHLOROETHANE	<	0.36		UG/L	
LH-02B	12/3/2008	1,2-DICHLOROPROPANE	<	0.49		UG/L	
LH-02B	12/3/2008	2-BUTANONE	<	4.3		UG/L	
LH-02B	12/3/2008	2-HEXANONE	<	2		UG/L	
LH-02B	12/3/2008	4-METHYL-2-PENTANONE	<	1.2		UG/L	
LH-02B	12/3/2008	ACETONE	<	5		UG/L	
LH-02B	12/3/2008	BENZENE		0.41	1.6	UG/L	
LH-02B	12/3/2008	BROMODICHLOROMETHANE	<	0.56		UG/L	
LH-02B	12/3/2008	BROMOFORM	<	0.94		UG/L	
LH-02B	12/3/2008	BROMOMETHANE	<	0.91		UG/L	
LH-02B	12/3/2008	CARBON DISULFIDE	<	0.66		UG/L	
LH-02B	12/3/2008	CARBON TETRACHLORIDE	<	0.49		UG/L	
LH-02B	12/3/2008	CHLOROBENZENE		0.41	0.62	UG/L	J
LH-02B	12/3/2008	CHLORODIBROMOMETHANE	<	0.81		UG/L	
LH-02B	12/3/2008	CHLOROETHANE	<	0.97		UG/L	
LH-02B	12/3/2008	CHLOROFORM	<	1.3		UG/L	
LH-02B	12/3/2008	CHLOROMETHANE	<	0.24		UG/L	
LH-02B	12/3/2008	CIS-1,2-DICHLOROETHENE	<	0.83		UG/L	
LH-02B	12/3/2008	CIS-1,3-DICHLOROPROPENE	<	0.2		UG/L	
LH-02B	12/3/2008	ETHYLBENZENE	<	0.54		UG/L	
LH-02B	12/3/2008	METHYLENE CHLORIDE		0.43		UG/L	Ju
LH-02B	12/3/2008	STYRENE	<	0.86		UG/L	
LH-02B	12/3/2008	TETRACHLOROETHENE	<	0.45		UG/L	
LH-02B	12/3/2008	TOLUENE		0.67		UG/L	Ju
LH-02B	12/3/2008	TRANS-1,2-DICHLOROETHENE	<	0.89		UG/L	

LH-02B	12/3/2008	TRANS-1,3-DICHLOROPROPENE	<	0.19		UG/L	
LH-02B	12/3/2008	TRICHLOROETHENE	<	0.48		UG/L	
LH-02B	12/3/2008	VINYL CHLORIDE	<	0.18		UG/L	
LH-02B	12/3/2008	XYLENE, TOTAL	<	2.6		UG/L	
LH-03	12/4/2008	1,1,1-TRICHLOROETHANE	<	0.9		UG/L	
LH-03	12/4/2008	1,1,2,2-TETRACHLOROETHANE	<	0.2		UG/L	
LH-03	12/4/2008	1,1,2-TRICHLOROETHANE	<	0.42		UG/L	
LH-03	12/4/2008	1,1-DICHLOROETHANE	<	0.75		UG/L	
LH-03	12/4/2008	1,1-DICHLOROETHENE	<	0.57		UG/L	
LH-03	12/4/2008	1,2-DICHLOROETHANE	<	0.36		UG/L	
LH-03	12/4/2008	1,2-DICHLOROPROPANE	<	0.49		UG/L	
LH-03	12/4/2008	2-BUTANONE	<	4.3		UG/L	
LH-03	12/4/2008	2-HEXANONE	<	2		UG/L	
LH-03	12/4/2008	4-METHYL-2-PENTANONE	<	1.2		UG/L	
LH-03	12/4/2008	ACETONE	<	5		UG/L	
LH-03	12/4/2008	BENZENE		0.41	2.6	UG/L	
LH-03	12/4/2008	BROMODICHLOROMETHANE	<	0.56		UG/L	
LH-03	12/4/2008	BROMOFORM	<	0.94		UG/L	
LH-03	12/4/2008	BROMOMETHANE	<	0.91		UG/L	
LH-03	12/4/2008	CARBON DISULFIDE	<	0.66		UG/L	
LH-03	12/4/2008	CARBON TETRACHLORIDE	<	0.49		UG/L	
LH-03	12/4/2008	CHLOROBENZENE		0.41	2.2	UG/L	
LH-03	12/4/2008	CHLORODIBROMOMETHANE	<	0.81		UG/L	
LH-03	12/4/2008	CHLOROETHANE	<	0.97		UG/L	
LH-03	12/4/2008	CHLOROFORM	<	1.3		UG/L	
LH-03	12/4/2008	CHLOROMETHANE	<	0.24		UG/L	
LH-03	12/4/2008	CIS-1,2-DICHLOROETHENE	<	0.83		UG/L	
LH-03	12/4/2008	CIS-1,3-DICHLOROPROPENE	<	0.2		UG/L	
LH-03	12/4/2008	ETHYLBENZENE	<	0.54		UG/L	
LH-03	12/4/2008	METHYLENE CHLORIDE	<	0.43		UG/L	
LH-03	12/4/2008	STYRENE	<	0.86		UG/L	
LH-03	12/4/2008	TETRACHLOROETHENE	<	0.45		UG/L	
LH-03	12/4/2008	TOLUENE	<	0.67		UG/L	
LH-03	12/4/2008	TRANS-1,2-DICHLOROETHENE	<	0.89		UG/L	
LH-03	12/4/2008	TRANS-1,3-DICHLOROPROPENE	<	0.19		UG/L	
LH-03	12/4/2008	TRICHLOROETHENE	<	0.48		UG/L	
LH-03	12/4/2008	VINYL CHLORIDE	<	0.18		UG/L	
LH-03	12/4/2008	XYLENE, TOTAL	<	2.6		UG/L	
MW-15R	12/4/2008	1,1,1-TRICHLOROETHANE	<	0.9		UG/L	
MW-15R	12/4/2008	1,1,2,2-TETRACHLOROETHANE	<	0.2		UG/L	
MW-15R	12/4/2008	1,1,2-TRICHLOROETHANE	<	0.42		UG/L	
MW-15R	12/4/2008	1,1-DICHLOROETHANE	<	0.75		UG/L	
MW-15R	12/4/2008	1,1-DICHLOROETHENE	<	0.57		UG/L	
MW-15R	12/4/2008	1,2-DICHLOROETHANE	<	0.36		UG/L	
MW-15R	12/4/2008	1,2-DICHLOROPROPANE	<	0.49		UG/L	
MW-15R	12/4/2008	2-BUTANONE	<	4.3		UG/L	
MW-15R	12/4/2008	2-HEXANONE	<	2		UG/L	
MW-15R	12/4/2008	4-METHYL-2-PENTANONE	<	1.2		UG/L	
MW-15R	12/4/2008	ACETONE		5	9.1	UG/L	J
MW-15R	12/4/2008	BENZENE		0.41	0.93	UG/L	J
MW-15R	12/4/2008	BROMODICHLOROMETHANE	<	0.56		UG/L	
MW-15R	12/4/2008	BROMOFORM	<	0.94		UG/L	
MW-15R	12/4/2008	BROMOMETHANE	<	0.91		UG/L	
MW-15R	12/4/2008	CARBON DISULFIDE	<	0.66		UG/L	
MW-15R	12/4/2008	CARBON TETRACHLORIDE	<	0.49		UG/L	
MW-15R	12/4/2008	CHLOROBENZENE	<	0.41		UG/L	
MW-15R	12/4/2008	CHLORODIBROMOMETHANE	<	0.81		UG/L	
MW-15R	12/4/2008	CHLOROETHANE	<	0.97		UG/L	
MW-15R	12/4/2008	CHLOROFORM	<	1.3		UG/L	
MW-15R	12/4/2008	CHLOROMETHANE	<	0.24		UG/L	
MW-15R	12/4/2008	CIS-1,2-DICHLOROETHENE		0.83	40.0	UG/L	
MW-15R	12/4/2008	CIS-1,3-DICHLOROPROPENE	<	0.2		UG/L	
MW-15R	12/4/2008	ETHYLBENZENE	<	0.54		UG/L	
MW-15R	12/4/2008	METHYLENE CHLORIDE		0.43		UG/L	Ju
MW-15R	12/4/2008	STYRENE	<	0.86		UG/L	

MW-15R	12/4/2008	TETRACHLOROETHENE	<	0.45		UG/L
MW-15R	12/4/2008	TOLUENE	<	0.67		UG/L
MW-15R	12/4/2008	TRANS-1,2-DICHLOROETHENE	<	0.89		UG/L
MW-15R	12/4/2008	TRANS-1,3-DICHLOROPROPENE	<	0.19		UG/L
MW-15R	12/4/2008	TRICHLOROETHENE	<	0.48		UG/L
MW-15R	12/4/2008	VINYL CHLORIDE		0.18	16.4	UG/L
MW-15R	12/4/2008	XYLENE, TOTAL	<	2.6		UG/L